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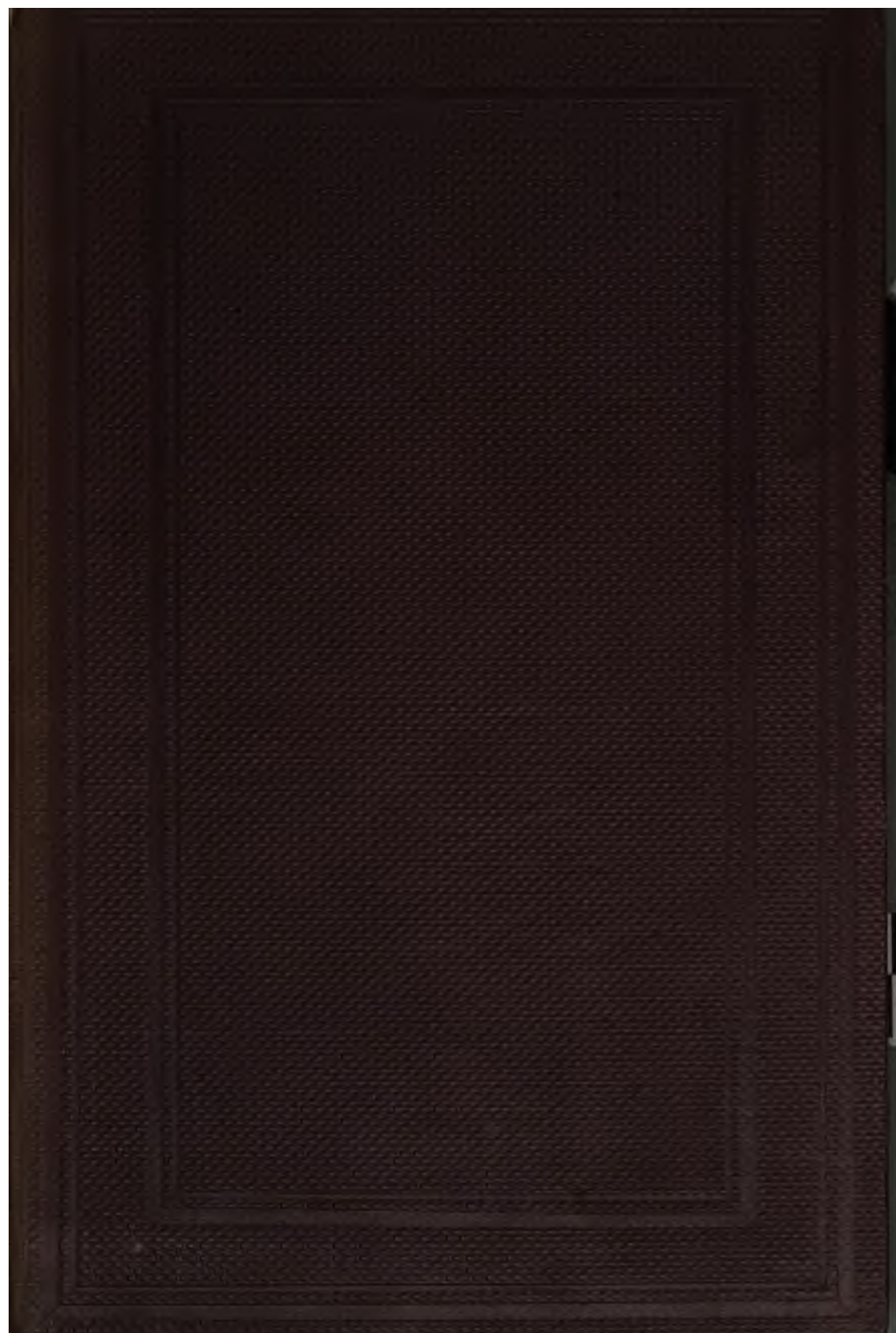
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COMMERCIAL ENTERPRISE

AND

SOCIAL PROGRESS;

OR,

GLEANINGS IN LONDON, SHEFFIELD,
GLASGOW, AND DUBLIN.

BY THE AUTHOR OF

“THE AUTOBIOGRAPHY OF A BEGGAR BOY.”

London :

PIPER, STEPHENSON, & SPENCE,
23 PATERNOSTER ROW.

—
1858.

232. A. 16.



INTRODUCTION.

If it was not that a Preface was just as much looked for in a book as a handle is to a pump, the Author certainly should have allowed this little volume to have told its own tale. Seeing, therefore, that it is necessary to introduce the reader to the bill of fare prepared for him, he shall not be detained long in the ante-room between the title-page and the first chapter.

Nearly the whole of the descriptive matter in the volume is the result of personal observation, and, it is hoped, will convey much interesting information to the general reader. In comparing the state of manufacture and the commercial condition of the towns under notice with their relations to these matters so recently as thirty years ago, it will at once be seen that the nation has been passing through the ordeal of a great social change.

The examples furnished in these pages of successful enterprising men have been introduced to prove how much we owe to the talent, energy, and zeal of those among us who have assisted in building up the mighty fabric of our national greatness.

In commenting upon the social condition of the people in the towns under consideration, the Author has freely animadverted upon the numerous evils that deform our social system.

In an artistic view, the book will no doubt be found liable to receive severe criticism. Arrangement and proper classification, either in a picture or a book, are certainly valuable recommendations, but there are instances in which formality, instead of being a beauty, becomes a defect, by crippling the free scope of the Author's method of expressing his ideas.

THE AUTHOR.

INDUSTRIAL DISTRICTS.

CHAPTER I.

LONDON.

To give anything like a faithful picture of London and London life would require not only a more intimate acquaintance with its numerous phases, but it would also require a much greater space than the scope of this volume will admit of. Two thousand years ago this now huge Queen of the World (if it existed so far back) must have been composed of a few scattered wigwams, lying along the northern margin of the Thames. Many centuries subsequent to that time the south side of the river for several miles was one continued marsh. Less than three hundred years ago the site upon which the greater part of Lambeth now stands was an unhealthy swamp, and unfit for human habitation. The wicker hovels of ancient *Lindun* from time to time were superseded by erections of a more durable character. As civilization slowly dawned upon the mixed races of men in Britain, the habitations and public buildings in London began to assume a more utilitarian character. About the tenth century Religion began to exert its sober influence over a large portion of the public mind. During many ages subsequent to this period, ecclesiastical architecture became the prevailing taste among the most enlightened men of the times. The talent, zeal, and energy employed in this department of national industry reflect no little honour upon those who were engaged in the labour. Many of our old churches and cathedrals, after battling with the corroding elements of nature during many hundreds of years, may be looked upon yet as the noblest monuments of genius and bold enterprise our country can boast of. The solemn grandeur, the solidity, the harmonious combination, and beauty of detail, as seen in Westminster, York, Norwich, and Peterborough Cathedrals, must continue to impress all who witness them with feelings of wonder and admiration.

Between two and three thousand years ago the human family could then boast of seven wonders. It is not too much to say that London as it now stands constitutes the most extraordinary wonder ever produced by civilised man. Two hundred years ago it is said that London possessed a population of half a million. At that time the majority of her citizens were pent up within the walls of gouty houses formed into narrow zig-zag streets. From the time of Charles the

Second until the beginning of the nineteenth century, the commerce of the nation, although crippled by numerous unwise restrictions, had gradually developed itself. When we examine the social condition of the people in Great Britain during the last two hundred years, with their numerous conflicting interests and continued struggles to obtain rational freedom, we cannot but feel surprised that so much has been done in the way of social and commercial progress. In 1800 the population of London had swelled itself to between 1,400,000 and 1,500,000. During the last fifty years the extraordinary increase of her inhabitants has no parallel in the history of the world. The expansion of manufacture and commerce unquestionably leads to centralization. Where the honey is, there we may expect to find the bees. So it is with the labour market; the sons and daughters of toil flock to it. London, Birmingham, Sheffield, Leeds, Manchester, Glasgow, and Belfast, have all become seats of thriving industry within a very short period of time. We mean short when compared to the age of the nation.

To those people who have had an opportunity of travelling through the ancient part of the City, a small amount of observation would enable them to discover many of the transmutations through which it has passed. The fact is, a large portion of the City may now be looked upon as patch-work. Many of the old buildings have been modernised with new faces. The incongruity of both houses and streets affords evidence of the utter want of system in town building in the good times of old. But in visiting many of the warehouses and other places of business, they could not help being interested in observing the numerous relics of ancient domestic ornamentation and other matters connected with architecture of by-gone ages. Carved mantle pieces, elaborately-embossed ceilings, magnificent staircases, with richly-decorated ballustrades, and splendid old halls panelled from floor to ceiling with oak that seems to bid defiance to time, everywhere meet the eye. Less than fifty years ago, these obsolete habitations were the abodes of princely merchants, who strutted their short hour upon the stage. In many places where the rich merchants of old were wont to luxuriate after their hours of business, and hold wassail with their friends, the rooms are filled with the most heterogeneous articles of commerce. In the region of Throgmorton-street, numerous share and stock-brokers ply their calling in buildings that were once sacred to plodding industry and domestic comfort. The narrow lanes and alleys on the south of St. Paul's are filled with motley hordes, from sweeps to merchant princes. Many of the old tenements that yet bear evidence of their aristocratic origin are now the haunts of gangs of professional swindlers, who ply their vocation over the length and breadth of the land.

Several of the changes produced by the great fire in London are still sufficiently obvious to attract the attention of strangers. In taking a circuitous tour from Pudding-lane, on the east side of Fish-street-hill, to Pye-corner, in the vicinity of Smithfield, little plots of ground where, rank weeds and flowers struggle for a mastery, may be seen. These small patches of "no man's land" are sacred to the

memory of many generations of our forefathers, whose bones are long since mouldered to decay. "In the midst of life we are in death." While the philosopher or the moralist may be meditating as he looks through the rails or over a wall into one of these old places of sepulchre, counter streams of humanity ebb and flow along the leading thoroughfares, as if Death, like the minstrel of Terra, had hung his darts upon the walls of the world to rust in sober indolence.

It would be difficult to imagine the numerous dreams that have come over London since Edward Heming contracted to place an oil-lamp before every tenth door in the City. This wonderful illumination made darkness more visible in the last year of the reign of the high and mighty prince, Charles the Second. By and by we will see how the oil-cruse was eclipsed by the effulgence of gas. We can well remember the time when the oil-lamps in London shed their flickering rays along the streets where fog and darkness combined to cover both men and things in total obscurity. At that time the sentry-box of the conservator of the public peace, and the sedan-chair, were each of them social appliances intimately blended with London life.

When a stranger makes his first appearance in London he becomes bewildered with a confused sense of its vastness. The everlasting brick buildings, the countless number of streets, and the living mass of humanity by which he feels himself surrounded, overpowers his mind. There are some elaborate pictures whose details can be comprehended with a little study; but in looking at London, from whatever point of view we may select, the vision is confounded with the multiplicity of its objects, and the strangeness of their variety. In passing along the leading thoroughfares, the sense of hearing becomes equally confounded with that of sight. A dull monotonous sound vibrates upon the ear like the continued roar of the sea-waves breaking upon a sandy beach. In the summer season the air is permeated with a fine impalpable dust, by which the glands of the mouth are dried up. In winter the ragstone and granite pavements are continually being pulverised by the friction of the countless vehicles that are continually passing and repassing, by which the mud is scattered about in all directions with the most profuse liberality. London mud has an adhesive character peculiar to itself; when once we come in contact with it we may as well try to shake off a button-hole friend as clear ourselves of the connection. Notwithstanding the Babylonian confusion that prevails in London, there are many objects that stand out in relief, and cannot fail to command attention. The different phases of social life meet the eye of the observer in their localised characters. In the West-end, society walks about in aristocratic gentility. In that sunny region of the metropolis humanity is drilled into fashionable shape by the discipline of high education. In the City we observe a different class of beings; instead of the measured step and stately mein of the lords of the soil, we here find a bustling, shrewd set of men, who are continually wooing the goddess of fortune. This region is full of the real romance of life. If we could imagine that the ball of St. Paul's contained the golden fruit for which the whole

race of the mercantile men in London were struggling, and that they were continually climbing the steep ascent to gain the prize, what an extraordinary scene would meet our eyes if we could only look upon the struggle for a single month! One or two of Fortune's favourite sons would reach the goal, a few would attain positions on the upper dome, a greater number would get no further than the whispering gallery, while the great majority, after having got part of the way up, would either be dashed to the ground by their rivals, or lose heart and retrace their steps. What a fermentation of human passion is for ever at work in this heart of the trading world, and how its hopes and fears, its joys and sorrows, with electric sympathy, affect numbers of the human family in the most distant regions of the earth! If we pass the old barrier of Bishopsgate in the East, a new colony of human beings, widely different in manners, habits, and even in language, will rise up before us. The historical reminiscence of a considerable part of Whitechapel leads the mind back to the age of the patriarchs. What a wilderness of howling humanity occupy the numerous dark, dirty lanes, alleys, and courts in the region round Petticoat-lane! What a death struggle there is here among Jews and Gentiles for a bare existence! What a combination of vice and virtue and human passion exists in this strange locality, in all their different shades, shapes, and colours!

To the stranger who has not had the means of observation, it will not be a little interesting to know that, as London has gradually swelled itself into its present huge dimensions, circumstances of adaptation have enabled the leading branches of trade to localise themselves in various districts. The geographical distribution of trades and professions are therefore as well defined in London as the natural produce of the earth is in its different climes.

If our readers will follow us, we will endeavour to introduce them into all the industrial regions, and describe their various characteristics. The Inns of Court, which lie within a diameter of half-a-mile, occupy what may be termed the middle region of London. These seats of learning are surrounded with a large industrious population, consisting of barristers, attorneys, sheriff-officers, law-stationers, and an army of copying clerks. The great body of the people employed in the above professions are located in the Temple, in Fleet-street, Lincoln's-inn, Gray's-inn, and their immediate neighbourhoods. The outside of society in this region is fair to the eye, but there are many sorry and anxious hearts under the wigs that are seen flitting about the courts of chancery.

The region of Doctors' Commons, on the south side of St Paul's, is also full of practitioners who attend the Probate and Will Courts, the Court of Admiralty, and the Ecclesiastical Courts. Although this district seems to be sequestered from the bustle of the busy world without, it is the daily battle ground of thousands of Her Majesty's subjects, and is the scene of many a romance in real life.

Soho is one of those industrial districts that are characterised by several special features. The one that would naturally strike a stranger first, is the display of manufacturers of antique furniture and

curiosity shops. It is a fact worthy of notice, that old furniture can be manufactured in this locality of any age and in all manner of styles, from the clumsy Dutch of the 15th century, to the elaborate workmanship and beautiful designs of the reign of Louis the 14th.

Although numbers of the articles we see exposed for sale are of modern make, they are sufficiently stamped with age, to make them in reality better than if they were old! And we may observe that the modern carving is much superior to the ancient.

The curiosity shops in this district are the means of drawing round them numbers of gentlemen who are continually fishing after relics of a younger age in the history of our forefathers. Many men have added to their archeological stores from this antiquarian warehouse of articles, that have been manufactured with the stamp of hoary age. The manufacture of antique furniture in Soho employs a large number of both men and women.

Soho is also the emporium of musical instruments. The square is full of pianoforte-makers. These modern lyres find their way into all parts of the civilised world, and tune the minds of millions of the human family to joy and sadness. We have no correct idea of how many people are employed in this business, but the number must be considerable, when we learn that Broadwood alone employs about five hundred people on the average. The number of manufacturers is two hundred and thirty-six.

Soho is one of the principal rendezvous for foreigners in London, and the consequence is that many of them ply their industrial avocations there. From what we know of the district we should say that there is no other locality in London where there is so much artistic talent and creative genius as in this.

During the last four years a considerable business has been done in the manufacture of perambulators for children, in New Oxford-street, upon the site of old St Giles. It is curious to observe how fashion reigns for the time being. The only use we could ever see in these little vehicles was that of their being made instruments of torture to poor children. In the winter we have frequently seen infants with their blood stagnated with cold and inaction, and in the summer broiled with the rays of the sun without the power to shift their bodies!

We observe however, that these machines are likely to be superseded by a new patented nursing chair, now being brought out by a Mr. Wilson, in High Holborn. The construction of this chair is both simple, and, to us, apparently efficient for its intended use. The chair or seat is poised upon two pistons that pass through a platform beneath, where they are connected with a pair of steel springs, by which an easy, agreeable motion is produced. The motion is either communicated to the chair by the action of the infant, or by the attendant occasionally touching a lever. From what we saw of the invention, we should say that the inducement its motion offers to the action of the child, is well calculated to strengthen the muscular development, as well as conduce to a healthy arrangement of the system. To loving and anxious mothers, this invention offers one

important feature, the daily and weekly accumulation of bone and muscle of their darlings is registered on a scale fixed to one of the pistons, so that their weight can be communicated to their papas daily!

Long Acre lies upon the south side of Soho. This place is, and has been, the seat of the coach manufacturing business for several ages. There are a very large number of industrious and intelligent artisans employed in this trade. Like nearly all other branches of skilled labour, it is subdivided into several different processes. The highest paid labour in it is said to be that of the heraldic painters. The regular coach painters form a numerous body, but we believe there are not more than from ten to fifteen heraldic painters. There are no less than two hundred and fifty manufacturers in London, the most important of these are Peters & Sons, (this firm employs three hundred men); Laurie, of Oxford-street; Barker, and Kesterton. These latter houses collectively employ about five hundred men. The total number of people employed in the coach trade in London, cannot be less than about seven thousand.

Clerkenwell is the next important industrial district in London, both as to the number of its work people, and the mechanical and artistic talent of its artisans. This region may be said to be a second edition of Birmingham, in as much as its leading branches of business are purely of a metallic character. From London-wall on the south, to the once verdant region of Pentonville on the north, and from Finsbury-pavement on the east, to the valley of Fleet-ditch on the west, the whole region is one bustling hive of industry.

The part of Clerkenwell bordering upon Fleet-ditch is rich in historical associations. At the bottom of Clerkenwell-green, on the lower part of Coppice row, there may still be seen the site of the old well, from which the district takes its name. When the ancient Cits of London were wont to be caged up within its walls, it is said that the clerks repaired to the well annually, to act sacred plays. This well being in the immediate neighbourhood of the Priory of St John of Jerusalem, its waters were much esteemed by the brethren of the order. Many a pic-nic must have been held in the once sylvan retreat by the clear running brook in the valley of the Fleet. Seventeen hundred years ago the stately gallies of the Romans were wont to lie in tiers as high up as the bottom of the once notorious Field-lane.

St John's-gate still stands in its mædieval glory and sombre solidity, forming a land-mark between the past and present history of London. This gate formed the south entrance to the Priory, which covered five acres of ground. A great part of the old site is now an open space, known by the name of St John's-square, and is bounded on the north by one of the most bustling thoroughfares in the district.

It is not known how long St John's-gate has existed as an hostelry, but we should imagine it must have been converted into a tavern after the death of Cave. That gentleman first published and printed the "Gentleman's Magazine" there in 1731, to which Dr. Johnson and several of the then literati contributed. Garrick the comedian, made his first essay here. The present occupant of the Jerusalem-tavern (Mr Foster) is a gentleman of much good taste. The walls of his

principal room contain on their surface much antiquarian lore connected with the history of both the Priory and district. A great portion of the interior of the tavern has lately been restored to its original state by Mr. Foster, at a considerable expense.

With the exception of the Tower, St John's-gate is the most interesting relic of ancient times in London. Its history is associated with many stirring events, since it passed through the insurrectionary fires of Wat Tyler and his undisciplined band of patriots in 1381. There are few places in London where an enquiring stranger could pass a more agreeable hour than in the public room of the Jerusalem-tavern, with "mine host" for a companion.

The leading trades carried on in Clerkenwell are clock and watch-making, gold and silversmiths, opticians, manufacturers of mirrors and picture frames, gold lace manufacturers, japanners, musical instrument-makers, turners in metal and ivory, gold beaters, gold and silver wire drawers, fancy casemakers, and a great variety of trades and professions necessary to, or dependent upon some of the above.

Although there are one hundred and twenty-two clockmakers in London, there are only two firms in the trade of any consequence. These are Messrs. Thwaite & Reed, and Messrs. Moore & Sons, both in Clerkenwell. The latter firm employ between thirty and forty men. We believe the leading business in this house is in the manufacture of time-pieces for churches and other public buildings. The value of labour in this trade is not of so high a standard as that of the watch-making business, the average wages being about thirty shillings.

Twenty-five of the London clockmakers are also watch manufacturers; eight are musical clockmakers, and four make church time-pieces. At a rough guess we should say that there are from fifty to sixty thousand artisans employed in the various branches of industry in Clerkenwell. Many of the higher class of artisans in this district make from three to seven pounds a week. It is said that a large number of the workmen in Clerkenwell are importations from Birmingham, and other parts of the midland counties.

WATCH MANUFACTURING.

The manufacture of watches is a very important part of our national industry, and, in the opinion of many well informed men, might be made much more so. The operative part of this business is conducted upon a different system here to what it is in Coventry or Liverpool. In both these places, a greater portion of the work is done in the workshops of the employers, whereas in London, the work is given out, and nearly the whole of it done by the men in their own houses. This system has much to recommend it, both to the men and their employers. With the artisans, their labour becomes identified with the domesticity of their homes, and it allows them a greater amount of freedom than what they could enjoy in the factories, and enables them to call in the aid of such members of their families as can be made useful. To the employers, it saves the expense of large premises, and the turmoil of superintending large bodies of men. These are among the advantages of the system of out-door

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work. If the picture had not a dark side, the above state of things could not fail to be satisfactory to all the parties concerned. It is a ~~and~~ misfortune that the best possible arrangements between men are liable to be taken advantage of for sinister purposes. Such is the case in this instance.

The following evils are said to be incident to the system of outdoor work :—For instance, when trade is in a flourishing condition it is no unusual thing for a man to have work on hand belonging to two or more masters; the result is, that in some instances where the orders in hand are of an urgent nature the master must wait the pleasure or caprice of the man in whose possession his goods are, and this too at the risk of losing the order. If the master's work should not be detained by a preference, on the part of the workman, for some other employer, the man may be wasting his time in a public-house, which would be equally as bad. It will easily be seen that men who can be so regardless of the interest of others and their own characters must frequently inflict serious injury upon their employers, by preventing them executing the orders of their customers.

We believe that as a body the operative watchmakers of London are a very deserving class of men, and that many of them are highly intelligent as well as being clever mechanics; but it is the misfortune of all bodies of men to be annoyed with black sheep. It is said to be no uncommon thing in Clerkenwell for an inferior workman to borrow a piece of work from a good tradesman, take it to a master, and pass it off as his own, in order to obtain employment. We are aware of one case of this kind, where a man obtained work from a first-class manufacturer and destroyed several pounds' worth of material, for which the employer had no redress! The consequences arising from this state of things must frequently be attended with both loss and annoyance to the employers, and it would be well for the character of the men themselves that such practices should be put an end to.

There is another evil that prevails in the trade among the dishonest and dissipated members to an alarming extent. People who are unacquainted with the business can have no idea that the machinery of a watch can be pawned, as it were, piecemeal. The Pawnbrokers' Act provides that no goods shall be taken in an unfinished state. This clause of the act, unfortunately, does not reach the watch trade in such a manner as to prevent the men from changing the custodianship of their masters' property. The several parts of a watch, although perfectly useless for any but the particular watch for which they are made, are held as finished pieces of goods, and therefore liable to be pledged. The complete movement is also liable to the same treatment. All watches of a superior class are fitted with a number of small jewels; these, too, find their way into the custody of the Clerkenwell uncles to the public!

It is impossible to calculate the sad demoralising effects such a system must exercise over the conduct of those men who lend themselves to it. We know that the well disposed members of the trade repudiate this dishonest practice as much as their employers can do. In nineteen cases out of twenty, the money obtained upon the pledged

articles is spent in drink. The men who resort to this degrading practice not only impoverish themselves and their families, but in many instances ruin their health, and thereby incapacitate themselves for attending to business.

In the district of Neufchatel and Geneva, where the distribution of labour is carried out to its fullest extent, there can be no such a thing as pawning the parts of a watch.

As first class mechanics, we have no hesitation in saying, that the London operative watchmakers stand at the head of their profession. There can be no better proof of this than the fact, that London-made watches are preferred in nearly all the markets of the world. Our continental neighbours are fully alive to this generally received opinion, inasmuch as it is no unusual thing for foreign-made watches for the American market to be sent over here and transhipped in British bottoms!

It must be evident to all who have paid any attention to the subject, that the watch manufacturers in this country have not kept pace with the growing wants of the community. In conversing with a gentleman who is a first class manufacturer in Clerkenwell, he observed that seven watches out of every ten worn in London were of foreign make. It will readily be asked how is this? The reason is very simple; the whole secret lies in the money value of the two classes of goods. There are few people who have such a profound veneration for their country as the family of Mr. Bull, but they are not quite so patriotic as to pay £20 for a home-made watch, when they can have one, (though it may not become an heirloom in the family for four generations), that will answer the purpose of the wearer quite as well for half the money.

Both in Neufchatel and in Geneva, a large portion of the watch-making is done by female labour. In our opinion, the beautiful anatomical construction of the female hand is decidedly better adapted for the manipulation of fine and delicate work than that of the man's. When it is proved that women are wanting in judgment, and without such mechanical ideas as will allow them to compete with the men in this branch of business, we will admit their incapacity. In the meantime we are not inclined to libel the ladies of Britain by even imagining that they are not capable to do that which their sisters on the Continent can. The proper distribution of labour in the places we have named has been the means of not only increasing the rate of production by a greater facility of labour, but it has also produced a perfection in the workmanship much superior to our own in the same class of goods.

Mr. Bennett, of Cheapside, has done a good deal to effect a revolution in the trade, by showing the unequal contest the British manufacturers have with their Continental rivals. We all know how soon men take alarm where their vested rights are in danger by innovation; and when we know that the interest of the working classes is more in the present than the future, we cannot feel surprised. One thing to us seems plain, there must either be a change in the mode, by which the price of British-made watches will be materially reduced, otherwise we may lose the trade altogether.

The London workmen erroneously imagine that if female labour were introduced into the business, the labour of the men would be displaced. Our notion however is, that instead of such being the case, by proper management, suitable employment might be found for many thousands of females, and instead of the workmen being displaced, an additional number would be required. We know more trades than one in which the price of labour for a single article has been reduced a full half, and yet the facilities offered by a better system have been the means of improving the condition of the men, and conferring a benefit upon the consumers. The enlargement of the watch trade, like every other branch of our native industry, would be the means of creating new sources of employment in several of our industrial departments.

At the present time, we believe the average wages of the London watchmakers to be from thirty-six to forty shillings weekly, and many of the first class workmen earn from three to five pounds a week. The average wages may be looked upon as a very fair remuneration, if there was any security in its permanency; but we all know the serious fluctuations to which the capital of working-men are liable by the depressions of trade. These are matters it will always be difficult to guard against, more particularly in connection with the manufacture of articles of luxury. It may be noted that the value of labour in this trade has been advanced both in London and the provinces during the last forty years, in some instances as much as 20 per cent. This may imply that the consumption of watches must have increased, this is true; but the demand has been in foreign watches, and the extra hands required have been for jobbing or repairing foreign watches.

We cannot do better in concluding this chapter, than by introducing Mr. Bennett's views of the trade to our readers. The subject is one of considerable interest in a national point of view. The following extract is taken from a lecture, delivered by that gentleman at Oxford, on the 23th of February, 1857:—

“As watches could be made to suit all classes, a question arose how to make the best possible time-keeper for the lowest price. This was tried by the two great manufacturing countries, England and Switzerland. Long ago it had occurred to him that we were not quite right in the shape or price of our watches; and after visiting the French Exposition the year before last, at which he found a whole regiment of Swiss watches, he found the Swiss could produce an instrument as good as ours, and as beautiful in finish, 30, 40, and, in some cases, 50 per cent. lower than the English. This was startling, and to ascertain the cause of it, he took a trip into Switzerland, and visited those watchmaking people in their mountain houses. The scene was truly delightful. It was an extraordinary hive of industry—a whole community watchmaking. The number of watches made by them was enormous. From three leading manufacturers he learnt that 1,500,000 watches were made last year in the Neuchâtel district, and this was over and above the produce of the Geneva district, and they declared, too, that their powers of production had

doubled in the last seven years, which was not to be wondered at when they took into account the marvellous ingenuity of their tools, and their skilful economy of labour. He contrasted those facts with what was going on in England, and said that they would find that the world was left to look principally to the foreigner for what should be one of their own most important articles of commerce. He learnt from the Goldsmiths' Hall that only 186,000 watches of British manufacture were stamped last year, and according to the census of 1851, there were within the London district, including every dealer who professed and called himself a watchmaker, only 4,800 in the trade. That was a scanty army to boast of as enough to conquer all the markets in the world; and what was the result? why, last year they were obliged to beg those very Swiss to let them have watches for their own use at home. Besides all the watches of which smugglers made no returns, duty was paid in 1853 on 42,486 watches; in 1854, on 79,209; and in 1855, on 90,670; so that they actually took of them for home consumption nearly half as many watches as were made in England. The Swiss put in operation certain causes which produced those results, and they must take a leaf out of their book, unless they were content to persist obstinately in a losing system. They must have, as the Swiss had—1, a decimal mode of measurement enforced by law, and so precise as to define with mathematical nicety the size and proportion of all the parts; 2, a complete directory, giving the name and special capabilities of every man and woman available; 3, a minute sub-division of labour, adjusting to each person's abilities the exact quality of the work which he or she can best do, and neither more nor less; 4, never employing a man to do what a woman can do as well or better; 5, they must get Lord John & Co. to look to Switzerland for a system of public education so admirably liberal as to constitute one essential element of their superiority. They well knew the absolute necessity of the utmost care in manufacturing the manufacturers. They were wise enough never to expect excellence in the work until they had thoroughly trained and tutored the future workman. And lastly, they must despise the libel that any man dared to cast upon his countrywomen, imputing to them inability to execute works of precision. Thousands of women were at this moment finding profitable employment at the most delicate portion of watchwork throughout the district round Neufchatel, and so prosperous had been the handicraft of these intelligent mountaineers, that thousands of men and women engaged in the trade peopled all the hills and valleys far and wide, from the Val de St. Imier, in Berne, in the North, down below St. Croix, looking over the Lake of Geneva. The subdivision of labour was there wisely made so minute as to adjust itself precisely to the special capabilities of every woman's individual dexterity. For any man to declare, whatever his motive, that the women of England were sure to do badly what the Swiss women were now doing so well, was an insult and a fallacy in which he refused to join. He knew better, and would before long prove their capabilities. In London more than 50,000 females were working for less than sixpence

per day, and above 100,000 for less than a shilling per day, and yet they possessed the power to equal, and perhaps outstrip, their Swiss sisters in a rival race for a honourable and abundant means of subsistence. It was peculiarly an English manufacture—its greatest discoveries and improvements had been the work of English ingenuity and industry. Then why should not our English women be employed upon a labour for which their sisters in Switzerland proved themselves so eminently adapted, and thus provide to a large extent a remedy for the distresses of our labouring female population, and open out a new channel whereby they might elevate their condition and benefit mankind? Working watch-makers had no need to fear the introduction of female labour, as the large demand that necessarily would ensue when watches were materially cheapened in price, would doubtless more than compensate any loss they might temporarily sustain. The success of the Swiss in the manufacture of watches was attributable not only to their employment of female labour in that department, but to the superiority of their art education. There, children were educated till they arrived at the age of fourteen. The people of that country hold ignorance to be a pestilential evil, and where actual poverty did not prevent, neglect was considered penal. They did not whack the child, but very properly whacked the father. Now that was a wrinkle. Every little community had all the machinery of education, with a building most carefully contrived, fitted up with all the necessary appliances. The State paid its portion—he thought more than half—of the current expenses, each little community paying one-fourth, and the parent a similar proportion. The people took care that the State had not the management of their schools, but the parents. They also had the decimal system of measurement, and in their census gave the names of every individual over fourteen, so that if a manufacturer wanted Sally Sukes, he would only have to refer to the directory, when he would find the required information. Their uniform system of measurement offered immense facilities in the manufacture of watches—it required no cobbling into shape. Then there was the sub-division of labour, which was carried out to a nicety, to each individual being allotted that kind of work for which he or she was most fitted. The women worked on the watches at home in the midst of their families; whilst their work did not require such close attention as many stitching operations. By this sub-division of labour, precision and rapidity were arrived at, which produced the *maximum* of quality for the *minimum* of cost. Then they took good care and did what we talked about in the last year, putting ‘the right man in the right place’—and these people discovered what we had not yet found out—namely, that the right man was very frequently not a man at all, but a woman. It was an undeniable fact that the nicest parts of the watch required such delicate manipulation that to be done with perfect accuracy as a matter of course, and not as an exception, we must go to that delicate form which nature had provided in the female hand. The Neufchatel district employs female hands, and thousands are earn-

ing good wages at watch-making; and how much better would this be for those females, who now, by working 16 or 18 hours a day, gain a miserable pittance. The introduction of female labour would not injure the men, but would benefit them, as they would be in a position to produce a supply which would enable England to maintain a supremacy in the market."

Mr. Bennett has no small interest in the trade, being both a manufacturer and a large dealer. Should he succeed in his praiseworthy endeavours to introduce female labour into the business, he will not only free the trade from the thralldom of a false system, but will open up a field of labour to a numerous class of females, who in time will become qualified to perform the finest and most delicate work in the trade.

We know it is the opinion of many employers, that female labour should be entirely confined to the routine of those domestic duties that more immediately minister to their own requirements. One gentleman observed, that if a large number of females were employed in the trade, a depression of business, such as has lately occurred, would be the means of sending many of them to the *pave*. This objection will hold good in all trades and professions where large numbers of females are employed. But this only proves that the field of female labour is by far too limited, and, therefore, shows us how necessary it is that the sphere of their action should be extended, so as to meet their wants. People who have their labour to dispose of, whether male or female, are glad to take it to the first available market. And, in conclusion, we have only to say, if women are not considered fit for the higher duties of mechanical trades, there are many departments in skilled labour in which, if tried, they would not be last in the race, either in the facility of manipulation or directing judgment.

In leaving Clerkenwell, we pass on to the east, through Finsbury, to St. Leonards, and on to the dreary regions of Spitalfields and Bethnal-green. This latter district may have been clothed in vernal robes at one time, but God knows there is little greenness now to relieve either the vision of the passing stranger, or the minds of the poor miserable inhabitants with its freshness.

From Finsbury-pavement, through Moorfields, by Finsbury-market, along the Curtain-road, through Shoreditch, and the upper part of Hackney-road, and threading the narrow mazes of Spitalfields, until we arrive at Bethnal-green, may be looked upon as one great emporium for the manufacture of household furniture. This business is branched off into several independent divisions. For instance, great numbers of men are solely employed in making chairs; these again are divided into classes, and form separate branches of labour. Sofa and couch-frames, table-stands, with block and pillars—in fact, every class of goods in the trade is divided into distinct classes. This division of labour enables the London furniture and cabinetmakers not only to get up their goods in a superior style, but also to undersell their provincial rivals in every part of the United Kingdom.

Strange as it may appear, nearly the whole of the furniture sold in Dublin is of London manufacture. Bed-room chairs of London make can be purchased either in Edinburgh or Dublin at the same price they are disposed of in the retail market in town. The districts we have named are all full of small manufacturers, who sell the produce of their labour to the wholesale merchants. Although there is very superior work done in the cabinet business in London, it would seem that the workmen are much behind the French cabinetmakers in producing articles where elaborate detail and fineness of manipulation are required. During the last two or three years, large quantities of cabinet furniture in walnut have been imported into London from Paris. Many of these articles are really splendid specimens of both workmanship and artistic talent.

It may necessarily be supposed that where there is such a large quantity of furniture manufactured, numbers of other trades will cling round the locality. Manufacturers and dealers in iron, steel, brass, silver, ivory, and wood mountings; carvers, turners, wood merchants, and upholsterers, are scattered over the whole region we have mentioned.

Spitalfields has long held the position as being the first silk manufacturing district in Britain, and it may be said to hold the same relation to Great Britain that Lyons does to France. The precarious nature of labour in this business, from the ever-recurring fluctuations and depressions in the trade, is the means of plunging the workmen into misery and suffering, from which there is little chance of escape. We believe there are from fifteen to thirty thousand people depending upon this business for their daily bread. When a general depression of commerce sets in in this country, the poor weavers of Spitalfields are the first to feel the calamity, and the last to be benefitted by the return of prosperity. We believe there is no industrial district in London where there is such a continual struggle among the people for a bare living. For miles round this centre of ill-requited industry, there are some thousands of acres covered with a swarm of human beings who live by the mere chance of finding food from day to day. Thousands of these poor creatures drag out a miserable existence by keeping their shattered nerves braced with sophisticated gin and porter. The sickly squalor, and miserably attenuated frames of great numbers of the inhabitants round this district, are sad signs of the trials and sufferings through which the people are passing, and are well calculated to leave a disagreeable impression upon the mind of the stranger who has had occasion to pass through it.

If we now pass on to the south-east, after travelling over a distance of about a mile and a half, we will find ourselves in the middle of what was once denominated Ratcliff-highway, but which is now St. George-street-in-the-East. From the Tower, on the west, to the entrance of the West India Docks on the east, over a distance of between two and three miles, there exists such a population as can scarcely be matched in any other town in the known world. The population in East Smithfield may be said to be composed of the most heterogeneous materials it is possible to conceive. The fact is, there

is scarcely a nationality on the face of the earth that is not represented in this district. Since old St. Catherine's was swept away by the utilitarian hand of progress, the amphibious denizens of that great cauldron of vice, struggling poverty and dark crime have found a congenial home in the dirty purlieus of East Smithfield, and the neighbouring districts of Limehouse, Poplar, and Stepney. The manners, habits, and language of the inhabitants of St. George-in-the-East, are entirely peculiar to themselves. Every species of vice and human degradation thrives in wild luxuriance in this region. Large numbers of the females are brutalised into savages, and, in many instances, the very instincts of their nature destroyed by gross intemperance.

Notwithstanding the fetid atmosphere of this valley of sin, there are thousands of hardworking men and their families who live in it, and toil from day to day, selling their labour wherever it may be demanded. There cannot be less than from sixty to seventy thousand labourers employed about the various docks, whose average earnings, we should think, are not more than ten shillings a week. The incessant character of this species of labour is the cause of this low average.

A considerable portion of the hard-earned money of numbers of sailors is continually passing through the hands of certain classes of people in this district, who may be likened to man-traps, or, in nautical phraseology, to land-sharks. The little dramatic scenes continually being witnessed in the leading thoroughfares and the dark purlieus of this region are well calculated to set the mind a thinking as to how such things should exist in a country that claims credit for being the most moral and religious in the world.

Watermen and coalwhippers form no small population of East Smithfield. The latter are a hard-working class of people, and many of them can stand an amazing amount of labour, in swilling porter and gin.

In passing Tower-hill, on our way to London-bridge, we travel through a busy locality, where the first merchants and produce brokers in the world abound. If we strike off from Tower-street, and pass down Idol-lane, we will quickly find ourselves in Billingsgate-market. Many understand the polite phraseology of this piscatorial seat of commerce, who only know there is such a place by report. Lower Thames-street is full of fish brokers, many of whom are men of great wealth. Fresh fish are consigned to these gentlemen from Norway, Hölland, Scotland, Ireland, and the various fishing coasts of England. Fish caught upon the west coast of Ireland are sent up from Galway to Dublin by rail, where they are sold by auction before six o'clock on the following morning; those brought for the London market are immediately sent off per steamer, *via* Holyhead, and find their way into Billingsgate on the following morning. Large quantities of fish, caught in the Frith of Forth, are put upon trucks at Brunt's Island, in the morning, and are stewing, roasting, or boiling, over fires in London the morning after. The most important part of the business done in Billingsgate Market is transacted early in the morning; it is then when the retail dealers in London, and the

neighbouring towns, make their purchases. In prosecuting our journey through the industrial districts, we next pass along London-bridge. The locality round the entrance to High-street (in the Borough) and Tooley-street may be said to be the region of the hop merchants. The moment a stranger arrives at the south end of London-bridge, his sense of smell is sure to be saluted with the pleasing aroma of this valuable vegetable. A short journey to the south, from the bridge, leads us to the land of leather-curriers, dubbin, and oakbark. Bermondsey is the great emporium of leather : it is full of a hardy race of industrious artisans, whose manners and habits differ widely from nearly all those we have enumerated. To a person unacquainted with the character of Bermondsey, it would appear to be a very unhealthy locality ; such, however, is not the fact. The business of a tanner is well known to be one of the most healthy occupations we have. We should say that there cannot be less than from thirty to forty thousand men employed in the various branches of leather manufacture in this district. In travelling from Bermondsey to Lambeth, we pass along Long-lane ; this was at one time the principal seat of toy manufacture in London. Crossing the High-street, we then pass along Union-street. Some few years ago, before the hat trade was revolutionised, this neighbourhood was the principal seat of that business. Twenty years ago, it was a common thing to see gentlemen-journeymen hatters rolling about the purlieus of this district in all the dignity of anti-teetotalism. Wending our way along the New Cut, in Lambeth, and Lower Marsh, we pass through a populous neighbourhood, full of small nondescript dealers—costermongers, peddling brokers, in stray articles from needles to bedsteads, nymphs of the pave, and people who live by accident. In proceeding to the west, a journey of rather better than a mile will take us to the High-street Lambeth, and on our way we will pass the palatial residence of his Grace the Primate of all England. In 1691, Sancroft, Bishop of Canterbury, who had been deposed for contumacy, was residing here in sullen dignity. Tillotson, in a spirit of Christian charity, paid his grace a visit of condolence, but was refused admittance. Having arrived in the High-street of Lambeth, we find ourselves in an industrial region widely different to any we have hitherto visited. Here the potter's wheel sounds in our ears, and the men we see flitting about have an earthy appearance. This is the region of clay. Large numbers of men, women, and children, are employed in this locality in the manufacture of common pottery ware, tiles, firebrick, and terracotta articles, both for ornament and architectural purposes. For some miles round this neighbourhood many large works are in operation that would not be allowed in the interior of the town. A short distance from here, on the upper side of Vauxhall-bridge, the stranger may see a splendid looking warehouse, with large lateral premises attached. That building is the town manufactory of the Messrs. Price, the celebrated candlemakers. By and bye, we shall have an opportunity of introducing this house to the notice of our readers in a somewhat different manner. A short sail, per steamer, will now take us down to the south-end of Westminster-bridge. Having left the

region of clay, gas, fatty matter, and alkalies, we will now find ourselves in the land of wood. When we enter the Belvidere-road, a strong ligneous aroma salutes the olfactory organs. The quick strokes of the saw-mill sounds on our ears; heavy laden wagons are continually passing to and fro, with their well-trained teams and comfortable looking wide-awake wagoners. Over a distance of a mile along the southern banks of the river a succession of large wood yards line the whole way. Taking an easterly direction, we will shortly find ourselves at Bankside, between Southwark and London bridges. Here we meet with a different branch of industry to any we have hitherto seen. It is rather a curious coincidence that the principal iron merchants in London have their places of business on the opposite banks of the river. On the south side, however, there are several considerable large foundries and engineers' shops, while the business on the London side is solely confined to the sale of steel, iron, copper and zinc. Many of the large country founders have their town warehouses in Upper Thames-street. If we now pass along Blackfriars-bridge we will find ourselves in a small district filled with insurance offices.* These institutions are formed to cover the pecuniary losses resulting from all sorts of casualties. This is New Bridge-street, Blackfriars. Turning to the right, a walk of a hundred yards will introduce us into one of the oldest parts of the city. This locality is made up of a series of dingy houses, dark lanes, with all sorts of curves, mysterious looking passages, and cunning courts round numerous corners. One of the greatest wonders of the civilised world may be found hidden from the vulgar gaze in an out-of-way court denominated Printing-house-square. "The Times," with its extraordinary, intellectual, and physical machinery, with no little trouble to a stranger, may be found in this rookery.

Passing on from Printing-house-square, we shoulder a dozen of sharp angles in several zig-zag lanes until we emerge in Broad-street. Although this lane is only fifteen feet from wall to wall, in the olden time it must have been considered a spacious thoroughfare, as its name indicates. After crossing Ludgate-hill, we immediately find ourselves in Ave Maria-lane, the top of which is crossed by Pater-noster-row. This is the region of literature, and a dull, dingy looking place it is. There is nothing to interest the passing stranger in this emporium of paper, typography, boards, cloth and calf bound human thought. The friendly relation of the houses and shops on the opposite site of the way, gives the row a social aspect; but the pleasure afforded by this proximity, is much lessened by the absence of the cheerful rays of the sun's light.

If we could only know the condition of many of the authors who daily haunt the numerous publishing establishments in this place, and could draw the veil from their every-day existence, many a sad tale would be unfolded. There is one house in the neighbourhood of the row that is said to make no inconsiderable profit by the books given by publishers over the dozen. The rule of the trade in this matter

* There are 120 Insurance Companies in London.

is, that in nearly all cases where the selling price of a volume is under five shillings, the wholesale dealer receives thirteen as twelve.

There are few places on the surface of the commercial world can be more insignificant in appearance than Paternoster-row, yet its reputation is world-wide. The influence exercised by the books sent forth from this market of literature daily, act and react upon the minds of men in the most distant regions of the world. The constant stream of human thought passing through this strange region of rhyme, romance, and sturdy prose, would appear to be sufficient to inundate the whole family of mankind.

The Row, at its eastern extremity, forms a junction with Cheapside; this is one of the great leading arteries of mighty London, and may be said to be the heart through which the blood of a great portion of the world is continually flowing. To the stranger, Cheapside is at all times a place of no little interest in consequence of the shifting character of its living scenery.

If we now take a quiet stroll to the west as far as Catherine-street in the Strand, we will shortly find ourselves in a goodly sized square, with a large curious Roman-shaped building in the centre. This square lies about half way between Long-acre and the Strand, and enfolds in its embrace the far-famed Covent Garden-market. This, then, is the greatest vegetable mart in the world. Flowers and fruits from all the sunny climes of the earth, are to be had here in all seasons. The air in the market is ever redolent with the fragrant offerings of Flora as she yields up her dying breath.

From two o'clock on Saturday mornings in spring and summer, Covent Garden-market presents to the stranger one of the most animated scenes it is well possible to conceive. Up to five o'clock in the morning, wagons, carts, and other vehicles swarm in from the surrounding country laden with the produce of well cultivated gardens from many miles distant. From the month of May until October, tens of thousands of tons of fruit pass from the hands of the producers to the dealers. Notwithstanding the unprecedented mass of human beings congregated in London, there is no town in the United Kingdom so well or so regularly supplied with vegetables. This market employs more people than we can calculate, in consequence of being spread over such a large space; however, it will therefore be seen that it is a place of great commercial importance.

We have now introduced our readers to all the leading seats of industry that lie scattered over London, forming, as it were, so many colonies of human beings. The manners and social habits of several of these classes are widely different from each other. Much of the disparity that exists among them arises from the remuneration they receive for their labour. Those who are continually struggling with the adverse circumstances of their position, cannot, in the order of things, be supposed to hold the same moral and social standing with such as are well paid for their labour and regularly employed. The great leading markets in London are, Leadenhall, Newgate, and the Borough, by St Saviour's Church. Farringdon-market may be added to the above as being a wholesale place of business. This market,

however, has been all but a total failure ; and, although it is comparatively a modern erection, by being almost deserted, a great portion of it looks like a ruin. It is a singular fact, that the London markets afford the most miserable accommodation of any in the United Kingdom. Aberdeen, Glasgow, Newcastle-upon-Tyne, Leeds, Bradford, Birmingham, Manchester, Liverpool, and Bristol, are all supplied with commodious public markets. Although there is nearly as much produce consumed in London as there is in the whole of these towns, her markets are the most squeezed-up, contracted, and the worst-arranged places in the kingdom. The cattle-market in London was a reproach to the town during centuries ; at last, however, an effort was made, and it was thrust into a suburban district. Old Smithfield is now a place of desolation ; and, notwithstanding the want of market accommodation both in Leadenhall and Newgate, this space of waste ground is allowed to remain to remind passers-by of the active patriotism of the civil authorities. Keeping out of the question the members of the legislative body, we know of no class of men so strongly innoculated with conservative notions as the men at the head of affairs in London. Every improvement that has been made during the present century, has been the result of pressure from without. As we proceed in our description of the town, it will be seen that many reforms are required to allow the people in the trading part of it room to breathe in.

We have a new artistic business to notice, and as it may now be fairly classed among the industrial branches of commerce in London, we may as well conclude this chapter with it.

PHOTOGRAPHY AND THE STEREOSCOPE.

It is worthy of notice how constantly every new discovery in science and art has been the means of stimulating commercial enterprise, creating new sources of labour, and thereby adding to the wealth of the nation. In the following pages of this work we shall have frequent occasion to observe how the introduction of one new branch of business is sure to be followed by others that are necessary to its development.

During the last eight years the art of photography has undergone a series of improvements ; and the consequence is, that it has spread through all the ramifications of society with amazing rapidity. The sciences of optics and chemistry have been called in to produce one of the most extraordinary effects in the range of human observation. By the use of the camera and solar rays every tangible object in nature can be duplicated with the most minute fidelity. The warmth of friendship and the endearing ties of relationship can be perpetuated and kept alive in our memories by the pictorial presence of those who are nearest and dearest to us, "though seas between us roll." The wonderful development of the photographic art has been the means of demonstrating how deeply the people of this country are enamoured of pictorial and artistic display. And it is surely no trivial matter to delight in, that we are enabled at a small expense to carry

with us wherever we may go the *fac-similes* of those we love : and while we think of the outpouring of the feelings that were wont to keep our souls bound in love's sweetest thrall, we can gaze upon the lineaments in which their minds are mirrored forth with life-like fidelity.

The scientific labours of Mr. Wheatstone and Dr. Brewster have been the means of extending the usefulness of the camera by the application of the stereoscope to photographic objects. In this little simple instrument we have an illustration of one of the most beautiful contrivances of creative power, as well as one of the most surprising optical delusions it is possible to conceive. When we behold a single object we are unconscious that two distinct images are fixed for the time being upon the choroid coating of each retina. These two reports of form, colour and size, are sent along the optic nerves to the brain, where they are compared and corrected, and where a single image of the object alone remains.

In viewing an object through the lenses of the stereoscope by the power of refraction and reflection, the two pictures in the field of vision are converted into one. Both of these pictures are imprinted upon a flat surface. The strange and really magical effect produced by the rays of light acting upon the two pictures brings the one we are examining into bold relief, so much so that we can see round the objects as clearly as if we were standing in the street within a few yards of them.

One of the most extraordinary effects produced by the stereoscope is the surprising manner in which a large picture, full of details, can be faithfully delineated in so small a space. Groups of human beings, landscapes with their accessories, and large buildings with their lines and architectural embellishments, are brought before us in all their truthfulness ; and this, too, in the narrow space of two inches and a-half !

Some people may imagine that the stereoscope is merely useful to possess as a simple instrument of amusement. This, however, is a sorry mistake. The numerous pleasant reminiscences arising from stereoscopic objects are of more value than that of a mere passing recreation. The child who leaves home and all its delightful associations can carry with him the domestic group that cheered his parental fireside, wherever he journeys over the wide world. The enquiring traveller can have his pleasant memories refreshed by beholding the charming scenes of distant lands in the company of his friends at home. The rugged mountains and dark glens of the West Highlands—the romantic scenery around the lovely Lakes of Killarney—the beauties of the Rhine, and the lofty but rugged grandeur of the Alps, with their snow-clad peaks and green valleys, can all be reproduced in his chamber. Here, then, is art embracing all forms, from the most stupendous to the most minute. The sublime works of the ancient masters are reproduced in all their majesty, and men and things are copied with as much truthfulness as if they had been taken from their original moulds.

Although the stereoscope is calculated to afford an inexhaustible

round of gratification to the lovers of art, it has yet another purpose to serve, which will be esteemed by many as of still greater importance. Large numbers of our manufacturers and merchants, when sending their travellers out on their journeys, are obliged to encumber them with unwieldy packages, containing specimens of their goods. In our opinion the time is not far distant when faithful copies of these specimens will be carried in the traveller's portfolio, accompanied by a collapsing stereoscope. We know of no class of people this new method would serve so much as the Sheffield and Birmingham manufacturers, many of whom are obliged to carry articles of both great weight and bulk on their journeys.

There are few people who have travelled along Cheapside, but must have observed the Stereoscopic Establishment of the London Company. Numbers of people are much gratified in witnessing panoramic views of strange places. But in our opinion one hour in this temple of art will furnish more graphic pictures of all that is worth seeing in the world than a legion of painters could execute in a lifetime. And what is of no secondary consideration, the solid objects are all standing out in bold relief, with all their most minute details.

We were not a little amused on viewing two ghost scenes (which have lately become highly popular) in this establishment. The subjects in each picture represent a group of rustic gamblers who are confronted with an apparition. The poor fellows are struck dumb with terror, and the spiritual intruder in each case enters with the up-lifted arm of warning. Both pictures are exceedingly well managed in an artistic point of view. The principal beauty in these pictures is the peculiar manner in which the drapery of the ghosts is managed. By some species of treatment the drapery is made to appear transparent, and in viewing the picture the beholder actually sees through it as if it were a thin gauze on a living body.*

We have been told that this Company are about bringing out a stereoscope upon a new principle, in which more persons than one can see the objects at the same time, which of course will be a considerable improvement.

We have noticed this business in consequence of its rising importance as a commercial speculation. The London Stereoscopic Company keeps a staff of artists continually engaged travelling, taking views in different countries. While we are writing, one of these gentlemen has just returned from an Irish tour of scenic observation, and we were informed by the manager that the travelling expenses of the journey was £400! From this it will be seen that the business must absorb a large amount of capital.

There are few, or perhaps none, of the hundreds of people, who daily amuse themselves by looking at the miniature pictures in the

* There are somewhere about fifty other ghost stories brought into pictorial relief, among which is one from a Christmas Carol, by Mr. Dickens. The whole of these are beautifully managed, and both the ghosts and the parties are produced with wonderful effect.

It is really astonishing how some of these apparitions burst upon the vision from the dim haziness in which they are enveloped; this is so much the case, that the beholder readily imagines he is viewing a living scene.

windows of this establishment, have any idea of the amount of machinery necessary to carry on the business. Numbers of men are continually employed in reproducing the negative pictures from a series of presses, and a large staff of females are engaged in colouring the various classes of photographic pictures, including portraits. It is said that there are over two thousand persons (mostly females) engaged in colouring photographic pictures in London and its neighbourhood. In many instances the remuneration amounts to 8s. and 9s. a day. It is now nearly six years since we saw a stereoscope for the first time. The instrument was then selling at one pound five shillings. The same article can now be purchased for one-fifth of the sum. At that time stereoscopes were scarcely known, except among scientific men. Since then the business has become no insignificant part of our national commerce.

The opticians of Sheffield have felt the growing expansion of this business to the enlargement of their own trade. The Brothers Chadburn, and Mr. P. Frith, in that town, manufacture many thousands of dozens of lenses during the year for stereoscopic purposes alone.

Photography has many roots in the wide field of British industry; indeed, it would be difficult to say how many branches of trade it affects, from the chemist to the picture-framemaker.

As a familiar explanation of the stereoscope may not be unacceptable to some of our readers, we have taken the liberty of copying the following article, taken from the Catalogue of the Company above noticed:—

“The stereoscope is an instrument which was originally designed for the purpose of demonstrating the theory of binocular vision, or in other words of exhibiting the effects and advantages of having two eyes.

“The name is derived from two Greek words, signifying to view solid things, and the instrument is so constructed that two flat pictures, taken under certain conditions, shall appear to form a single solid or projecting body.

“The effects are so extraordinary, and seem so opposed to the evidence of our senses, that the most casual observer immediately seeks a solution of the mystery. As, however, the phenomena cannot be comprehended without some knowledge of the science of optics, a few general principles will be stated in as familiar a manner as the subject will admit.

“All bodies are rendered visible by the light which radiates from every point of their surfaces, each ray of light carrying with it the image of the object from it emanated. These rays are refracted by the chrySTALLINE lens and other humours of the eye; and are brought to a focus so as to form a picture of the object, upon a delicate expansion of the optic nerve, termed the retina, which picture is precisely similar to that formed by the lens in the ordinary camera obscura. The impressions thus produced are conveyed to the brain, or sensorium, by the optic nerves; so that the eye does not see, but is merely the instrument by means of which the mind perceives external objects, while the judgment, derived from experience, determines their shapes and distances.

" A picture of an object is formed on the retina of each eye ; but although there may be but one object presented to the two eyes, the pictures formed on the two retinae are not precisely alike, because the object is not observed from the same point of view.

" If the right hand be held at right angles to, and at a few inches from the face, the back of the hand will be seen when viewed by the right eye only, and the palm of the hand when viewed by the left eye only ; hence the images formed on the retinae of the two eyes must differ, the one including more of the right side, and the other more of the left side of the same solid or projecting object. Again, if we bend a card so as to represent a triangular roof, place it on the table with the gable-end towards the eyes, and look at it, first with one eye and then with the other, quickly and alternately opening and closing one of the eyes, the card will appear to move from side to side, because it is seen by each eye under a different angle of vision. If we look at the card with the left eye only, the whole of the left side of the card will be plainly seen, while the right side will be thrown into shadow. If we next look at the same card with the right eye only, the whole of the right side of the card will be distinctly visible, while the left side will be thrown into shadow ; and thus *two* images of the *same* object, with *differences of outline, light, and shade*, will be formed, the one on the retina of the right eye, and the other on the retina of the left. These images falling on corresponding parts of the retinae convey to the mind the impression of a single object, while experience having taught us, however unconscious the mind may be of the existence of two different images, that the effect observed is always produced by a body which really stands out or projects, the judgment naturally determines the object to be a projecting body.

" It is experience also that teaches us to judge of distances by the different angles of vision under which an object is observed by the two eyes ; for the inclination of the optic axes, when so adjusted that the images may fall on corresponding parts of the retinae, and thus convey to the mind the impression of a single object, must be greater or less according to the distance of the object from the eyes.

" Perfect vision cannot then be obtained without two eyes, as it is by the combined effect of the image produced on the retina of each eye, and the different angles under which objects are observed, that a judgment is formed respecting their solidity and distances.

" A man restored to sight by couching cannot tell the form of a body without touching it, until his judgment has been matured by experience, although a perfect image may be formed on the retina of each eye. A man with only one eye cannot readily distinguish the form of a body which he had never previously seen, but quickly and unwittingly moves his head from side to side, so that his one eye may alternately occupy the different positions of a right and a left eye ; and, if we approach a candle with one eye shut, and then attempt to snuff it, we shall experience more difficulty than we might have expected, because the usual mode of determining the correct distance is wanting.

"In order, then, to deceive the judgment, so that flat surfaces may represent solid or projecting figures, we must cause the different images of a body, as observed by the two eyes, to be depicted on the respective retinæ, and yet to appear to have emanated from one and the same object. Two pictures are therefore taken from the really projecting or solid body, the one as observed by the right eye only, and the other as seen by the left. These pictures are then placed in the box of the stereoscope, which is furnished with two eye-pieces, containing lenses so constructed that the rays proceeding from the respective pictures, to the corresponding eye-pieces, shall be refracted or bent outwards, at such an angle as each of the rays would have formed had they proceeded from a single picture in the centre of the box to the respective eyes, without the intervention of the lenses; and as it is an axiom in optics that the mind always refers the situation of an object to the direction from which the rays appear to have proceeded when they entered the eyes, both pictures will appear to have emanated from one central object; but as one picture represents the real or projecting object as seen by the right eye, and the other as observed by the left, though appearing by refraction to have proceeded from one and the same object, the effects conveyed to the mind, and the judgment formed thereon, will be precisely the same as if the images were both derived from one solid or projecting body, instead of two pictures, because all the usual conditions are fulfilled; and, consequently, the two pictures will appear to be converted into one solid body."

As the stereoscope is yet in its infancy, it is not easy to foresee the various purposes, both artistic and commercial, to which it may be applied. Many of the subjects already produced are both instructive and amusing from their dramatic character. The fact is, there are few incidents or circumstances in life requiring human action that cannot be made a source of amusement or pleasing study. In a commercial point of view, the progress of this business up to this time has been quite unprecedented.

CHAPTER II.

SOCIAL APPLIANCES.

If we allow four hundred pounds weight of food for each individual in London, which is just half the quantity said to be allowed to a private soldier, it will be seen that this three-million-headed monster annually devours an amount of food the weight of which is equal to one thousand two hundred million pounds! The eye can easily take in the above sum, but when we think of its units, the mind is perfectly bewildered. When we come to scan the details of which this stupendous mountain is formed, it will be seen that our calculation is founded on no ideal conjecture. From the returns before us, enumerating the quantities of certain leading articles of food annually consumed in London, we find the following nice little items; to wit:—1,600,000 quarters of wheat, 280,000 oxen, 1,500,000 sheep, 250,000

pigs, 150,000 calves, 280,000,000 lbs. of fish, 310,460,000 lbs. of potatoes, 90,000,000 cabbages, 4,000,000 fowls and game, 140,000,000 eggs. We have no return of cheese, butter, bacon, peas, barley, nor oatmeal. The solids are diluted with 50,000,000 gallons of ale and porter, 100,000,000 gallons of milk—less 250,000 gallons supplied by the cow with the iron tail!—3,000,000 gallons of spirits; in this latter we may give the different water companies credit for somewhere about 700,000 gallons. We have next 70,000 pipes of wine; how much cider, logwood, water, and brandy, we are left to guess. There are eight water companies in London, who produce an annual supply of 18,250,000,000 gallons. 10,000,000 cubic feet of gas is consumed every twenty-four hours for illuminating purposes. The following returns, in reference to the consumption of coal, has been kindly furnished us by Mr. J. R. Scott, coal registrar—sea borne coals, in 1855, 3,016,868 tons; 1856, 3,119,884 tons; by rail, in 1855, 1,162,487 tons; in 1856, 1,127,270 tons. Total, in 1855, 4,179,355 tons; in 1856, 4,247,154 tons. During the reign of Charles the Second, we are told that the London people then consumed 350,000 tons of coals annually. Of course we have no means of ascertaining the number of faggots with which they warmed their hearths and homes. There is nothing we know of could furnish a better proof of the extraordinary manner in which London must have swelled itself in so short a time as the above returns. The numerous social appliances, accessible to nearly all classes of the people at the present time, contrasts strangely with the *limited liability* system of the good old days that are gone. All the vessels in the kingdom, one hundred and fifty years ago, would not be sufficient to keep the steam of London life up by supplying her with coals at the present time.

The industrial character of London can no where be seen to better advantage than in the various retail markets that lie scattered over her more populous districts. These may be enumerated in the following order:—On the south side of the river we have the *New Cut* (in Lambeth), Lambeth Walk, Newington, Bermondsey, Union-street, Blackfriars-road, and the Borough. Those on the city side are Brill, or Somers-town, Tottenham-Court-road, Camden-town, St. George's, Oxford-street, Drury-lane, Clare-street, Leather-lane, White Cross-street, Clerkenwell, Shoreditch, White-chapel, Spitalfields, Bethnal-green, Ratcliff Highway, Rosemary-lane, and Paddington. As Hungerford-market is rather a genteel place of business, we have left it out of our catalogue. On the evenings of Saturday, many of these places of indiscriminate traffic present the most animated and bustling appearance. Thousands of small traders have all their hopes and fears centred in these marts. The life and death struggle to be witnessed in these places is well calculated to call to mind the trite adage, "That one half of the world does not know how the other lives." In passing through some of these uncovered bazaars, and observing the apparently trifling articles of sale, one would be at a loss to know how many of them would represent even an humble dinner! Yet small and trifling as some of these articles of commerce are, they afford the means of subsistence to thousands of

the London poor. These markets fairly represent the wants at least of 2,000,000 of the population, and the money passing through the hands of the dealers keep the social machinery of people in all parts of the country in healthy motion.

The religious, moral, social, and commercial appliances of London, require to be brought before the reader in detail before he can form anything like a just appreciation of their vast importance. There are two hundred and ninety-eight churches and seventy-two chapels connected with the Church of England. The Baptists have seventy-nine chapels; Calvinists, five; Bible Reading Christians, one; Calvinistic Methodists, four; Catholics, twenty; Church of Scotland, five; Danish, one; Free Church of Scotland, two; French Protestants two; German Catholic, one; Independents, ninety-three; Greek, one; Russian, one; Irvingites, five; Jews, eight; Latter Day Saints, one; Lutherians, five; Methodists of the New Connexion, two; Moravian, one; New Christian Church, one; Presbyterians, 6; English Presbyterians, two; Free Presbyterians, one; Primitive Methodists, four; Secession, two; Society of Friends, seven; Dissenting Wesleyans, seven; making in all, 556 public places of worship. The educational establishments would appear from their number to be sufficiently adequate to the wants of the people. There are forty-two colleges, and 1828 private and public schools. The number of establishments for correctional purposes are as follows:—Twelve police courts, ten county courts, and eighteen jails and houses of correction. The number of curative institutions, under the head of hospitals, is 158. There are also eighty-eight public institutions for various purposes, seventy-four libraries, and eighty-nine newspapers—sixteen of which are daily. The commercial men of London have the means of transacting their business in 639 banks. The general public are provided with twenty theatres to afford them amusement. In order that the people enjoy protection, both for life and property, they have surrounded themselves with an army of 7,000 policemen. It is not a little curious to add that among all the various classes of dealers in the metropolis the publicans are by far the most numerous. Taking the different branches of the wine, ale, and spirit trade, there are considerably above 7,000 people directly engaged in them. The dealers who supply such articles as are daily, on demand by the community may be classed as follows:—Grocers oil and colourmen, provision merchants, green-grocers, cheese and baconmongers, bakers, butchers, poulterers, fishmongers, confectioners, drapers, milliners, tailors, shoemakers, surgeons, lawyers, hair-dressers, ironmongers, watchmakers, jewellers, stationers, and booksellers. The number of persons who carry on these trades and professions upon their own account may be set down in round numbers at 24,000. As many of the parties engaged in these branches of industry employ large capitals in their business, we may form some little notion of the large number of people actually engaged.

The number of people who make a living by street dealing in London form one of its most curious features. Perhaps there is no town in the world where small things are turned to such profitable

account. Amongst these we may mention several articles in constant demand. The simple article of firewood furnishes a daily livelihood to many thousands of both young and old. Cat and dog meat, which is composed of the entrails of animals (principally horses), killed at the yard of the various knackers. Water cresses also employ a large number of people the whole year round. Baked potatoes, sheeps' trotters, chesnuts, oranges, flowers, and fruit in their seasons. All sorts of fish, lobsters, crabs, winkles, oysters, prawns, and shrimps. The number of people who live by dealing in the above articles cannot be less than 100,000. In many cases, these things pass through several hands before they find their way down to the poorest class of dealers. It is not a little surprising to see how the rule of comparison may be applied to a class of people so far down upon the scale of social existence, yet it will be found to hold equally good here as it will among those who are far removed above them. The man who can take his five shillings to the market is a long way in advance of the poor creature who requires to pay for the loan of a basket to enable him to go out with his few coppers' worth of oranges. There can be no doubt but there is great improvidence among these poor people. But when we reflect upon the hardships and privations consequent upon their calling our surprise is that there is not more. It is only such as have taken an interest in the daily toils of these people who can form anything like a correct estimate of the continual hardships and sufferings they endure, in order to make, at the best, a most miserable livelihood. Although the street dealers are a long way below the general commercial community, they are not without their use in the social economy. By constant plodding industry, they act as a sort of a check upon the large dealers, by keeping down prices. Street dealing in London may be viewed in a much more important light than many people who have not studied the matter are able to conceive. It affords honest industry to thousands of unfortunate beings who otherwise would be obliged to beg, or take refuge in the workhouse.

The street dealers are not the only class of people who have to do battle with the world. If we take the retail traders as a body, it will be found that they are a hard-working, energetic, plodding, and an industrious race; their position is surrounded with many difficulties, a keen spirit of competition reduces their profits and cripples their sales, high rents and heavy local taxes absorb by far the greater portion of the produce of their industry. Bad situations and unforeseen circumstances of a disagreeable nature are the means of bringing ruin upon numbers daily.

In the genteel suburbs of London numbers of honest hard-working tradesmen are daily being reduced to beggary, by being obliged to follow out a system of credit. The class of people who generally run into debt are amongst the most worthless members in the community. These people sustain an outward show of respectability by contracting debts where opportunity offers; when one neighbourhood becomes too hot for them they change the *venue* by removing to another. People of this class are decidedly more safe from detec-

tion in London than they could possibly be in any other part of the United Kingdom, the wilds of Connemara not excepted. St. John's Wood, the fashionable purlieus of Paddington, Pimlico, Clapham, Brixton, and several of the other respectable suburbs of London are infested with swarms of people whose incomes range from one hundred to three hundred a year; in many cases they manage to double their incomes by taking advantage of struggling tradesmen. There is another class who live entirely by plundering dealers and supporting pawnbrokers, and in many cases these pests of society are regularly organised, and they have a set of stereotyped references to assist them in their predatory career. The legitimate retail dealers in London are continually liable to suffer from the dishonest practices of their own members. There are men in the retail business in London who rarely make a purchase of goods in the regular way. To those who are uninitiated in the mysteries of commercial roguery this statement may appear somewhat strange, but when it is known that there are scores of men in London who continually live by professional swindling, and that some of them have sufficient address to circumvent even the most cautious wholesale dealers, the above statement will assume a different aspect. These men dispose of their goods in a regular systematic manner; one-third is taken off first-class articles, one-half off second, and two-thirds off third-class.* Whatever description of goods these people can obtain they have no difficulty in finding a market for them. A short time ago a first-class retail house had articles of a certain description exposed in their windows with the price labelled at 35 per cent. below the regular wholesale price, and we know they were then selling the goods in question at a profit of 11 per cent. It will be seen that the honest dealer has but little chance to compete with people of such easy virtue. The goods we have alluded to above involved a transaction of nearly a thousand pounds, and we have reason to know that the whole were sold for somewhere about four hundred pounds. A couple of manufacturers in the North of Ireland have had a lesson they will not easily forget in connection therewith. Some few months ago a nest of swindlers were located in Tooley-street in the Borough, who plied their vocation with considerable success; their mode of doing business was well calculated to throw wholesale people off their guard; when these gentlemen favoured a house with an order they stated that they were young in business, gave what appeared a first-class reference, and if their order amounted to two hundred pounds they offered fifty pounds in hand, before the first account became due they generally managed by granting acceptances to have goods to more than double the amount of the original order. Of course they could only remain a certain term in one locality, and when they found it necessary to remove it was also expedient to leave their name behind them. These sort of migrations and transformations are continually going on in the great Metropolis, and hundreds of country manufacturers and wholesale merchants are left with reminiscences of

* What is meant by first, second, and third-class goods refers to articles in the first place that will always command their price, and others less saleable.

any thing but an agreeable character. Honest men with small capital in London, generally speaking, have a continual struggle to make ends meet, and it matters little what the nature of their business may be. But it is really surprising how men divested of moral balance obtain high commercial positions. The romance of roguery continually brought to light in the Bankruptcy and Insolvency Courts of London, furnish examples of barefaced audacity and cunning enterprise of the most extraordinary nature. One fortunate speculation in the career of some of your determined adventurers enables them to command unlimited credit. The social habits of such people are invariably of the most extravagant character, the consequence is that their prosperity only lasts a short season. We knew one gentleman who commenced business with forty pounds—a fortunate speculation in the funds changed his position as if by magic—his mercantile career was brought to a climax at the end of eighteen months, when his liabilities amounted to forty-nine thousand pounds, and his assets nil; he passed through the Bankruptcy Court, received a lesson of advice and a castigation for his reckless dishonesty, and was sent into the world without a discharge. Cases of a similar character are occurring in London with fatal regularity.

The gradual change that has silently crept over the social condition of life in London, presents us with many remarkable features. During the last two hundred years every succeeding decade seems to have produced an alteration in the tastes, habits, and manners of the people. So late as the year 1694, London was blessed with one newspaper, known by the name of "*Dyer's News Letters*." It is true the *Gazette* existed at that time, but no matter was allowed to appear in it but such as was favourable to the Court. In the succeeding year, two sheets made their appearance, with some small claim to the title of newspapers. The one was the "*Intelligence Domestic and Foreign*," and the "*Courant*." The Press in those days was crippled, like many other commercial speculations with stupid restrictions, and it was not until one hundred and twenty years rolled over the nation, the Press of Britain *dared* to become the organ of public opinion. Since the beginning of the present century, the thunder of Printing-house-square has regularly increased in volume, and the Press has become a moral power of the most extraordinary character.

Two hundred years ago the whole of the banking transactions in London were done through a few of the leading Jewellers. It is only one hundred and fifty-four years since the great seal was affixed to the Charter of the Bank of England. The continued expansion of commerce during the last seventy years, has been the means of inviting numerous banking houses into existence. These valuable institutions have kept pace with the requirements of commercial men in all parts of the United Kingdom. Although many of them during the last thirty-five years have been conducted upon loose, if not dishonest principles, the great majority have been carried on upon principles of the most rigid honesty, and have been therefore a great public good. The rapid accumulation of material wealth during the present century, naturally suggested the idea of security, the conse-

quence has been the introduction of numerous Insurance Companies. These useful institutions are now made to meet every species of casualty, whether of life or property, and are to be found scattered over the whole of the United Kingdom. During the present century, no less than one hundred new branches of industry have sprung into existence to keep pace with our growing requirements, and in this short period of time the social characteristics of London society have gone through a complete transformation. At the present epoch of the world's history, London stands alone in the vastness of her population—in the immensity of her material wealth—in the extraordinary activity, zeal, and enterprise of her merchants—and above all, in the completeness of her astonishing social appliances.

The traffic which is daily being carried on in the leading thoroughfares, and on the river, is well calculated to give strangers an idea of the enterprise, industry, and restless character of the Bull family. Foreigners may well be filled with surprise at the everlasting bustle and activity that continually animates the streets of London. But they can have little idea of the huge machinery that is ever at work to keep this strange part of the world in motion.

The business done by the river steamers, and the space traversed by them daily, is really fabulous. The Citizen Steam-boat Company, whose vessels ply between London-bridge and Chelsea, run fourteen boats, each of which make twelve journeys daily upon an average the year round, and traverse over a distance of ninety-six miles. The daily mileage is, therefore, 1344, or at the rate of 490,560 miles annually. The mileage of the penny boats will be much the same. The number of passengers carried by these two companies from 1848 to 1854 was 35,122,935, and in 1855 and 1856 the aggregate number of passengers who travelled by the same conveyance was 7,440,000.

The Halfpenny Steamboat Company run two boats from London-bridge to the Dark-arches in the Strand; these make a journey of two miles each every fifteen minutes, and travel over a distance of 160 miles daily, or at the rate of 58,400 miles annually. The steam-boats that ply below London-bridge belong to a different company. The number of boats employed in this service is eight. These ply to Greenwich, Blackwall, Woolwich, and Gravesend, and all the intermediate stations. The distance traversed by these boats is 640 miles daily, or at the rate of 233,600 miles annually.

Taking the data supplied by the two first-mentioned companies, we may safely conclude that there are somewhere about seven millions of people who avail themselves of this species of conveyance in London during the year. Astonishing as the passenger traffic on the river may appear, it falls into insignificance when compared to the business done by the cabs and omnibuses on the streets. At the present time there are three thousand five hundred cabs licensed to ply for hire. The number of these vehicles indicates a surprising change in the tastes, habits, and social condition of the people since the beginning of the present century. So recently as 1809, there could not have been more than from three to four hundred hackney-coaches in the City. (Coaches were first introduced into this country in the

time of Elizabeth.) These old-fashioned vehicles were rude, clumsy, lumbering-looking things, and their conductors were a set of the most stolid, brandy faced beings it is possible to conceive. What between the lumbering hackney-coaches and the sedan-chairs, with their genteel, accommodating bearers, and the anti-wide-awake Charlies, with their sentry-boxes, the London people must have been comfortably situated both for convenience and personal protection. At the present time, a man can have his four quarters transported from one extremity of the mighty metropolis to the other for one-fourth less than he would have been charged forty years ago in having himself removed from Charing-cross to the Swan with a pair of Necks in the City. Both Charing-cross and Lad-lane have changed their names and their manners since then. If we allow an average of twenty miles for each of the 3,500 cabs we have mentioned above, it will be seen that the distance travelled over annually will amount to 25,550,000 miles. If some of the fast men of the previous age could look up over their mouldering tombs, they would naturally think that they had made a mistake, and were peeping into the wrong world, or that the people they saw were mad.

Until within the last few years, there was no efficient organised company engaged in the London street conveyance business. At the present time there are two companies, both of which have considerable capitals invested. "The London General Omnibus Company" was the first to take the field. The following statistics will give a pretty good idea of the capital embarked, and the gigantic character of the undertaking:—In May, 1857, this company were running 604 omnibuses, requiring a daily service of 5900 horses, and 1916 men. Their vehicles made 6640 journeys daily, and travelled over a distance of 30,750 miles every twenty-four hours, or at a rate of 11,233,750 miles annually. If we allow the company ten passengers for each journey, which we look upon as being under the real average, the number of passengers who avail themselves of this mode of town travelling will amount to 24,236,000 annually—a number exceeding the population of England and Scotland united. The weekly disbursements of this company for men's wages and the keep of their horses cannot be much short of £6000. We should say that the working expenses and tear and wear of plant of this single company will not be less than five hundred thousand pounds annually.

The 3500 cabs already noticed, will at least employ 5000 men, and as many horses. These men and horses will absorb £10,000 weekly, and it will take other £500 for the tear and wear of the stock. From what we know of this business we believe we are not far wrong, if we average the daily receipts of the London cab proprietors at £3500. It will thus be seen that the money spent in this mode of street conveyance amounts to the nice little sum of £24,500 weekly, or at the rate of £1,274,000 annually!!!

In 1856 the Metropolitan Saloon Omnibus Company upon the limited liability system was called into existence. This Company have 16 of their newly constructed saloon omnibuses plying in different directions. Up to September, 1857, the number of horses owned by this Company

was 121. Taking their mileage upon the same data as that travelled by the vehicles belonging to the General Omnibus Company, the distance traversed by these 16 omnibuses, will be 960 miles daily, or at the rate of 350,400 annually. As there are above 800 omnibuses engaged in the street traffic of London, we have still about 200 to account for. These are in the hands of private parties who have their own routes. The distance traversed by these will amount to 20,000 miles daily. The total distance traversed by the steam boats on the river, cabs, and omnibuses on the streets, must be somewhere about 69,937,270 miles annually!! We may add to the above, 10,000 vehicles of various descriptions, that are daily employed on the streets of London. These are composed of private carriages, dog carts, gigs, market carts, vans, wagons, drays, and common carts. Allowing that each of these vehicles travel over a distance of 10 miles daily, this will give 36,500,000 to add to the above, which will make in all the all-most incomprehensible sum of 106,433,270 miles!!! The money spent in cab, omnibus, and steam conveyance in this great human Ant-hill cannot be less than from £3,000,000 to £3,500,000 a year. We may fairly calculate that 10,000,000 people travel by land and water in London, and if we add to these 60,000,000 who are annually flying about the world along the various lines of railway in the United Kingdom, it will give us a pretty fair idea of the amazing restless character of the British people.

When we look back to the dreamy age of sedan-chairs, hackney-coaches, heavy and light stage-coaches, lumbering stage-waggon, with their bell leaders and drowsy conductors, and compare their easy snail pace with the reckless go-a-head character of the people in the present time, we can scarcely imagine them to be the same breed of humanity! In taking a retrospective glance over the last fifty years, and observing how the history of the 19th century unfolded its wonderful details, we will be astonished at the curious manner in which the onward pressure of civilisation has created fresh wants, and opened up new resources. Every new branch of industry that has been added to the national catalogue, has been the means of calling into action the energy, enterprise, and genius of men determined to push their way. Some of these have entered upon their duties with well laid plans, and matured calculation, while others have rushed into the busy arena, regardless alike of their own, or the fate of others.

We know that wherever commerce holds out her tempting allurements, cunning, double-faced deception and chicanery are sure to be there. The tricks in trade and petty shifts of those who live by bartering, have been proverbial since the time men first learned to exchange one commodity for another. The people in London may be looked upon as a fair sample of civilised human beings; but the manner in which many of them are tossed in the rough blanket of fate, is the means of giving a peculiar elasticity to their conscience. If we add to this the facilities offered by the extraordinary isolation that surrounds the units of this vast mob to roguery, we have a key to much of the vice that prevails in London.

It is a fact worthy of notice that, although London is made up of

an endless number of streets and houses, tens of thousands of the inhabitants have the greatest possible difficulty in finding house room. Nearly a million-and-a-half of the poor of London are packed away into miserable hovels, like so many herrings in a barrel. People who live in the country, where they breathe the pure bracing air of heaven, and have elbow room to move in, have little idea of the cribbed-up condition of the London poor.

The majority of respectable tradesmen, such as small dealers, clerks, artisans, and men with limited incomes, have much difficulty in obtaining houses suitable to their circumstances. Notwithstanding our boasted philosophy and knowledge of business, we are sadly awanting in many of our social arrangements. A man with a wife and family in London, whose income is from one hundred to a hundred and fifty pounds a year, if he wishes to preserve his family from moral pollution, must pay from forty to sixty pounds a year for a house. The consequence of this state of things is, that people who have regard to their social status are obliged to take houses at a rental much above their means, and sublet such apartments as may not be required for their own use. There are many very disagreeable features connected with this subletting system, both for the tenants and the lodgers. In almost every case the householders and their lodgers are entire strangers, and generally continue so, the consequence of which is, there is no bond of sympathy between them. The great majority of single men in London who live in lodgings, have houses to go to when their business for the day is done, but they have no homes in any sense of the word. Of late years, there has been an endeavour on the part of numerous philanthropic gentlemen to remedy this state of things, both in London and in the other large towns. For some time past the model lodging-house system has been on its trial. The idea that suggested these institutions was no doubt a good one; but we are much afraid that they will not meet the expectations of their founders. The want of a means of classification will always be a serious drawback in these places. Many of the people who take advantage of model lodgings in London belong to that class of unfortunates who have graduated down from the middle ranks in society. Numbers of these men live by doing little jobs where they can obtain them, and quartering upon their friends. Some of them live by more disreputable means. Generally speaking, the members of this class are well informed, and in conversation are at home upon most subjects. A good deal of their information, however, is of a most dangerous character, especially to such young men as may be obliged to associate with them. We know more instances than one where young men have been corrupted by their connections in these houses. It is a sad truth that the most of people who fall from the upper ranks of society frequently become the most vicious and regardless of consequences arising from their conduct.

Notwithstanding the many disagreeable phases connected with the social condition of London life, there are others of a more agreeable character. Some people have the idea of retiring to the country, to enable them to enjoy life in the quiet of solitude; but if we were

desirous to fly from human observation, we would dive into the retirement afforded by the living mass of London. Public opinion or prying individual curiosity rarely invades the domestic home of those who dwell in this great wilderness. The espionage and gossip of the country coterie have no subjects whereon to feast in London; there, a man may either hang himself, or his shirt out to dry, and no one will trouble themselves about the matter. Whether a man goes to church or a tavern, on the Sunday, it is all the same to his neighbours. There is no place between Penzance and Inverness where a person can go to the market with such a small amount of money, and be so well served; and we are sure there is no place where a man, irrespective of his standing in society, will be treated with the same amount of civility in transacting business, whether that be great or small. Although London allows a man to fly from the prying observation of his fellow-men, it gives him the means of studying human nature under every possible condition. The great panorama of London life presents to the inquiring mind the most extraordinary picture of men and things ever painted on the world's canvass. Its kaliedoscopic scenery, with its ever-changing combinations, pass and repass before him, like the phantasmagoria of ten thousand dreams. It is an embodiment of mind and matter continually undergoing change; it is, in fine, a conglomerate of bricks and mortar, of men and women, of young and old, of joy and sorrow, of love and hatred, of industry and indolence, of pride and modesty, of vaulting ambition and platonic indifference, of virtue and vice, riches and poverty, sickness and health, life and death!

**THE TIMES AND ITS MACHINERY—MACINTOSH AND INDIA RUBBER—
PRICE AND CO.'S PATENT CANDLE WORKS.**

Having taken a cursory glance at a few of the numerous phases of London life, we will now notice some of the men who assist in keeping her commercial machinery in motion. If there had been no master minds in London engaged in the pursuit of commerce, neither kings nor lords could have made her what she is. London is great because she has been built by great men—Whittingtons and Greshams have followed each other in rapid succession. At the present time London may justly be looked upon as the focus of commerce for the whole world. It would be no improper similitude to liken her to a huge gem set in an island. The fact is, her material wealth is a reality in the contemplation of which the mind becomes bewildered. Several of her public buildings are in keeping with our national importance. The Parliament House, with its unseemly site and too elaborate tracery, is a magnificent work of art; Greenwich Hospital and St. Paul's are not only magnificent monuments to the genius of Sir C. Wren, but they reflect honour to the nation, whose property they are. The British Museum furnishes a record of our civilisation, while the National Gallery and Marlborough House prove that, with all our bartering propensity, we have time and taste to apply to the cultivation of high art.

In noticing commercial men who have made their influence felt in society we will be obliged to confine ourselves to a very narrow circle. The *Times* newspaper, as a commercial undertaking, like the city in which it is conducted, stands alone in its greatness. By the talent, energy, and untiring industry of the late Mr. Walters, this journal has grown from a thing of comparative insignificance to be the head of the press of the world! There are few people who can form even the most distant idea of the influence this paper exercises over the moral and social condition of millions of people both at home and abroad. The machinery by which it is worked is of the most complicated character, having its ramifications scattered over the face of the globe. Notwithstanding the manner in which its parts are diffused, its operations are conducted with the most systematic regularity. The division of labour is extended to all its parts, both in reference to hands and brains. The plenipotentiaries of Printing-house-square represent this sovereign of the press at nearly all the courts in the civilized world. Its reporters are like as many news-mongering genii, who are continually catching men's thoughts on the wing. These untangible materials are again caught by the genii of the case, who fabricate them into burning editorials, pleasing and instructive essays, splendid critics, or gossiping paragraphs. During the last thirty-five years the *Times* has become a necessary part of the mental food of a large number of the thinking members of society. No oracle in ancient times ever spoke with more authority, or was looked up to with greater confidence. Kings, priests, and laymen watch the signs of its columns. The *post prandel* enjoyments of thousands of men in all parts of the civilized world depends upon its daily financial announcements. It is the noiseless echo of ten thousand bellmen, and its second column is continually laden with mystery, sin, and sorrow.

The proposition of the *Times* being a commercial concern may be objected to; the fact is, that dealing in men's thoughts, and catering for food for the mind, is just as much a commercial calling as that of trading in any other marketable commodity. It is not our business to pry into the financial affairs of the *Times*, but it strikes us very forcibly that there are few commercial establishments, either in this or any other part of the world, whose annual receipts and disbursements are of the same magnitude. Some people may imagine that this establishment has attained its present gigantic proportions by the growing demands of the age. In part this may be said to be true; but if the late Mr. Walters had not been a man of singular firmness the London pressmen would have crushed both the *Times* and its compeers. Had the men been successful the old system of the hand-press would have still been in operation, and instead of a daily supply of 60,000 copies, the reading and news-loving world would have had to be content with five! There are two circumstances connected with the management of this paper that have made it what it is. In the first place, the literary talent employed upon it is the best the market will afford for the time being. The other is, the peculiar pliability of the journal, by which means it adapts its political creed to

the prevailing taste of the day. Being the acknowledged organ of the British people, it never attempts to lead; but the moment a change is perceptible in the barometer of public opinion it is found in the vanguard. Whether we view the *Times* in a commercial or literary point of view, it must be acknowledged to be one of the most extraordinary private undertakings of either ancient or modern times. Every part of its vast machinery is conducted with the most surprising regularity. Its literary staff gives it a stupendous moral power. Its correspondents enables it to see with more eyes than Argus possessed, and its army of reporters completes its wonderful system of espionage.

The nineteenth century has not produced any man who has exercised such an influence over the national mind as the late Mr. Walters. Of late years we have had numerous national schools, but it may be said that the *Times* has been the most efficient national school in the kingdom. Men of all ages and conditions have received instructions from its columns; and although it occasionally revels in the extravagance of its power in wild escapades, its general character is dignified and sober. If the morality of the *Times* is not up to the standard of Christianity, it is decidedly ahead of the morality that regulates the conduct of the everyday life of the British people. The Englishman who points to London as being the largest city in the world, may justly refer to the *Times* as standing alone in its greatness!

It may well be said that science and art are twin brothers; and we believe there never was an age in which their relationship was so well understood as the present. During the present century, wherever science made a discovery, his brother art stepped in, and by his magic power turned it to practical purposes for the use of men. It is really curious to observe how science, by the nature of his prying into the secrets of creation, has given a value to numerous things that formerly were looked upon as useless to man, and how art has seized upon them and converted them to purposes of utility, and thereby proving that nothing that was made was made in vain. The application of india-rubber to domestic purposes has been the means of opening up a wide field of labour and commerce both in this country and several others in different parts of the world.

In the year 1823, the late Mr. Charles Macintosh laid the foundation of a new branch of British industry, by the introduction of a species of waterproof cloth. The manner of preparing this fabric was by the solution of caouchouc. This material is a gum taken from certain trees in South America. When this substance was first imported into the country the only use to which it was applied, for a considerable time, was that of effacing lead pencil marks from paper. The extraordinary elasticity of India-rubber, and its imperviousness to water, was not long in causing an inquiry to be made into its chemical properties. Mr. Thomas Hancock, and the gentleman above named, we believe, were the first who applied it to manufacturing purposes. The properties of this peculiar vegetable production were slowly unfolded under the continued and laborious experiments of these gentlemen. As time rolled on, however, one article after

another was sent into the world from their laboratories, until the variety of goods now manufactured has almost become endless. Since 1821, every year has seen a fresh application of this strange substance to some new branch of industry. By far the most remarkable feature connected with India-rubber is, that it has been made to assume a new property by being subjected to a powerful heat. This discovery was made by Mr. Hancock after years of labour and disappointments. In consequence of the fiery ordeal through which it is made to pass ere the change is effected, Mr. Hancock has been pleased to designate it "Vulcanized India-rubber," for which he holds a patent.

In order to give our readers some little idea of the attention paid to this business, we may mention that between the years 1820 and 1847, Mr. Hancock took out fourteen different patents for as many new applications of this material to manufacturing purposes. At the present time it would be difficult to numerate the different purposes to which it is applied. In domestic economy the articles in daily use are numerous. Those used for mechanical purposes are adapted to a vast number of contrivances. Surgery has called to its aid many useful articles. In the nautical department many highly valuable articles have been introduced; and the same may be said in reference to physical science. The civilized family of men owe more to the firm of Charles Macintosh and Company than what we can say. The enterprise of these gentlemen has been the means of enlarging the commerce of the country in a most extraordinary manner. They have not only contributed largely to the wealth of the nation, but they have been the means of adding to the happiness and comfort of thousands of the people. During the last fifteen or twenty years, there is not a town or good-sized village in the United Kingdom in which their goods are not exposed for sale. More than this, the articles of their manufacture find their way to the remotest parts of the earth. In the case of this one house, we see how labour acts and reacts upon the industrial market in a thousand different ways. We believe that Mr. Macintosh's first essay in business was in Glasgow. At the time he was prosecuting his inquiries into the nature and properties of India-rubber, James Watt and Mr. Bell were investigating the power of aqueous vapour. The whole of these gentlemen have left the impress of their master minds upon the nation, if not upon the world itself. We have no doubt that there are thousands of people who only see the firm of Macintosh and Company in the light of successful merchants. This, however, is only a contracted view of the case. These men, by their talents and well-directed industry, have become national benefactors; and, when they have all passed away, they will have left monuments to their fame in the improved condition of their countrymen. It must be a comfortable reflection for men who have been engaged in the stirring duties of the busy world during years of toil, labour, and anxiety, to know that they leave it better than they found it, and that they themselves have been instruments in the change.

The railway system, with its extraordinary dovetailed interests, has been the means of calling into existence no small amount of personal

enterprise. It is true that many have suffered shipwreck in their attempts to make the rail the highway to fame and fortune. From Hudson to Redpath, hundreds have gone by the board, and their places are known no more. There is one firm, however, in the Strand, that has risen from partial obscurity to be the observed of all observers. It is only a few years ago since Mr. Smith—now, Smith & Sons—carried on the business of a stationer and bookseller, nigh their present huge establishment. When the railway system began to extend its ramifications over the land, this gentleman, with a shrewdness and foresight peculiar to men of sound business habits, saw that there was an opening for well-directed enterprise in a new field. During the last forty years, the advertising columns of the newspaper press, and the blank walls in the large towns, gradually extinguished the old race of bellmen, and, as a consequence, revolutionised the world in these matters. Nothing can afford a more decided proof of our social organization than the modern system of advertising. When the world was less on the wing, and men acted upon the principle of stay-at-homeism, advertising, except through the local bellman, was of little use. The expansion of newspaper circulation, and the adoption of wall publicity and puffing, changed our national tastes and feelings in no small degree. Mr. Smith was in a position to understand all the bearings of the advertising system, and he made his calculations accordingly. The business now carried on by the firm of Smith and Sons stands alone in its magnitude. We have heard of men farming immense tracts of country, but should say that the distance over which these gentlemen hold almost sovereign sway is without a parallel. Every station along all the leading railway lines in the United Kingdom has been converted into an advertising medium. The second and third-class carriages are also made to appeal to their inmates, by their walls being converted into silent monitors. There is a deep-toned philosophy in the typography of these carriage mutes that put us in mind of the battle of life that is continually going on in the commercial world. However stupendous the advertising business of the Messrs. Smith may be, we should say that it is only secondary to another they have in connection with it. For some time these gentlemen have had book-stalls at all the principal railway stations in the United Kingdom. Their sale of cheap literature must therefore be exceedingly great.

If the business of the Messrs. Smith was confined to their transactions in newspapers alone, it would be greater than anything of the kind that ever existed. The number of daily and weekly journals that now pass through this mammoth establishment is more than was issued from the whole press of the united kingdom less than fifty years ago. It would be a difficult matter to give anything like a correct idea of the magnitude of their business and its wonderful ramifications. The publishing houses whose trade is confined to cheap publications must find in these gentlemen first-rate customers, as they are not in the habit of publishing themselves. This business has grown into its present gigantic proportions within a few years. The whole of their arrangements must be conducted in the most systematic and

economical manner. They have three different sets of servants along the lines. One class attends to the advertising department, another to the book-stalls, and a third to the special superintendence, and their advertising agents are scattered over the whole of the united kingdom. The establishment of Smith and Sons, in the Strand, is well worth a visit. The whole of its departments are conducted upon the division of labour system, where the right men and boys are in their proper places. In this house we have another example of how one class of industry is the means of creating others. Had the railway system never existed, the business of the Messrs. Smith and Sons, in all likelihood, would have been confined to their old trade. These gentlemen, like the Chambers of Edinburgh, may be looked upon as great national educators. The success of their business has not only been profitable to themselves, but we look upon it as a public advantage. The development of a business like this must in a great measure depend upon the manner in which its conductors study public taste. Books are not like loaves of bread of which a certain quantity can only be consumed. When a taste is formed for reading, the book trade creates a demand for itself, and the consumption is only limited by the means the public have to purchase. The artificial wants of the people of the United Kingdom cost them nearly if not more than their natural. We should say that pretty near a hundred millions of pounds are required for intoxicating drinks and tobacco alone for the people annually. How much is spent in books and periodicals we can form no idea. The newspapers and cheap periodicals issued from the London press must amount to upwards of two millions weekly. The works of popular writers that have been published in a cheap form, have been issued from the press in myriads. We know one work alone that is said to have commanded a sale of a quarter of a million. If some wise man had told our forefathers that the people of the present generation should read by steam we can imagine the opinion that would have been formed of his prophetic character. The silent influence exercised over the mind and social condition of the nation by such a firm as the Messrs. Smith and Sons must be very great. Although this house stands alone for the magnitude of its business, it has been the means of inviting other speculators into the same field. So far as their railway business is concerned, they have no cause to fear any rival. We observe, however, that an advertising company has been lately formed in London upon much the same plan. These people, instead of farming railway stations and carriages, have taken miles of blank walls! If some of the old inhabitants of Swan-alley, in St. Catharines, could be allowed to have a quiet peep out of their graves and see the splendid pictorial puffing signs that grace the walls which keep prying eyes and felonious hands out of the docks, they would imagine they were enjoying a panoramic treat in some strange land. Should this blank-wall speculation succeed, we should not be surprised if an offer were made to farm the backs of men whose business requires that they should be constantly on the move. From what has been said, it will be seen that Messrs. Smith and Sons have created a new business, by which means they have called into existence a very large

amount of labour in various branches of trade. A book may appear to be a very simple thing in the eyes of some people, who merely look upon it as the produce of the combined labour of two or three persons. The number of people employed in producing a book is more than the generality of men are aware of. In referring to the different processes connected with this business, we have the rag-makers, rag-gatherers, rag merchants, rag-sorters, papermakers, chemists, machinemakers, colourmakers, sizemakers, twine and cord-makers, sorters, pickers, pressers, packers, and carters. Then we have authors, printers, printers' devils, compositors, pressmen, machinemakers, feeders, folders, oil merchants, inkmakers, typefounders. Next we have the publisher, with his staff; then comes the book-binder, goldbeater, folder, stitcher, gluemaker, spinner and weaver, leather manufacturer, toolmaker, and presser. The whole of the above classes of people, and many others we have not named, are set in motion by the simple act of bookmaking. If this firm is doing business (as it is supposed) to the amount of between eight and nine hundred thousand annually, we will be able to form a pretty good estimate of the influence their business must exercise upon the social condition of many thousands of the industrious classes.

In describing the geographical distribution of the several branches of industry in London, we took occasion, while pointing out the pottery district, to refer to Price's Patent Candle Manufactory. A short distance above Vauxhall-bridge, and bordering upon Battersea-fields, a large stone and brick building may be observed. A stranger would see at a glance that this erection is not at all in keeping with the rest of the buildings in the neighbourhood, in consequence of its superior character. The building here alluded to, is Belmont Factory, a name that is now known over the whole civilised world.

The discovery of carburetted hydrogen gas, and its appliance to illuminating purposes, were matters of signal importance, both in a social and commercial point of view, to a large portion of the human family. Although gas is by far the best and most economical light we can use, either for private or public purposes, the difficulties that surrounds its manufacture, prevents its general use. The old system of candle making that existed up to within the last twenty years, afforded unmistakeable proof of how little that business was indebted to science. In the year 1816, gas made the first inroad upon the old oil lamps that were wont to send their faint flickering rays athwart our streets at night. The battle between Oil, Tallow-dips, and the brilliant Mr. Gas, continued many years after the above date. Oil and tallow being composed of such apparent simple matters, neither the candlemakers nor the oil merchants troubled themselves about their properties. From what we can learn, it would appear that the French chemists were the first to pry into the nature and properties of fatty matters, with the intention of turning their discoveries to commercial purposes. M. Chevreul, and Guy Lussac, have both pushed their enquiries into the mysteries of this strange material in the animal and vegetable economy. In 1833, it would seem that considerable improvements had been introduced into the manufacture of

candles in Paris by the above gentlemen. The constituent properties of fat were proved to be very dissimilar in character. Tallow is said to be composed of two solid bodies, one liquid oily body, and one of a syrupy nature. The first solid is called stearic acid, the second, margaric acid. The liquid oil is oleic acid, and the syrup is known by the name of glycerine. This latter material possesses the most extraordinary conservative properties. The discovery of glycerine is attributed to Scheele, the German chemist, who figured in the latter end of the last century. The world is largely indebted to the researches of this scientific luminary. It is to him we owe the discovery of chlorine. We are not aware of any single article having made such a revolution in the manufactures of the country, as has been caused by the introduction of this one. The old tallow chandlers, whose knowledge of chemistry in their business was confined to boiling, evaporating the water, and separating the fibrous material, but they never dreamed of such a thing as glycerine. Indeed, if they had, they would have had no idea of its uninflamable nature, and that it was calculated to reduce the illuminating power of the candle. The application of science to this business has been the means of raising it from being the lowest on the scale of mechanical art to nearly the highest. The firm carried on under the name of Price & Co., since 1840, have produced a new era in the manufacture of candles. The gentlemen who have had the management of this concern have brought a thorough knowledge of chemistry to bear upon it. The fact is, they have rescued this branch of industry from being a clumsy mechanical business to be one of a purely scientific character. What was worse than useless in some of the materials have been transmuted into valuable medicines. Instead of the candlemaker's workshop being a stinking, dirty, offensive place, it is now converted into a laboratory, where useful labour and scientific researches are successfully prosecuted.

We believe the revolution that has been effected in this business is principally owing to the scientific acquirements, energy, and zeal of two gentlemen (brothers) of the name of Wilson. It is not our province to describe the difficulties these gentlemen had to encounter in separating the useful from the valueless part of the materials they had to operate upon. Some few years ago a man would have been laughed at if he had proposed to make candles of oil. In this business several vegetable oils are used in great quantities. Even in this go-a-head age there are few instances of any branch of British industry expanding to the very extraordinary extent this one has done. Mr. G. Wilson, F.R.S., in a paper read before the British Association, we believe in 1856, made the following statement. "In 1840, the firm of Price & Co., employed seventy-four men and ten boys. They then manufactured monthly about twenty tons of cocoa nut candles, value 1590*l.*, and about twelve tons of stearic candles, value 1590*l.* In 1855 they were employing 1098 men and 1191 boys and girls, and manufacturing 707 tons of stearic and composite candles and night lights monthly, their value being 79,500*l.*

It is impossible to over-rate the influence a business like this must

have upon the commerce of the nation. This firm has not only created a new branch of industry, but it has given a healthy stimulant to several old ones. The annual returns, according to the above statement, amount to upwards of one million. There is another important branch of their business that is left out of this statement, in which the returns must be very considerable. This is the manufacture of oil for burning, lubrication, and oiling wool in the process of manufacture. We may add to this their important manufacture and commerce in glycerine. In the year 1855, this company paid duty upon 358,272 lbs. of paper, at three-halfpence a pound, amounting to the small item of 2,350*l*. A business like this, being so successful over a series of years, was sure to invite men of capital into the same field of labour. The consequence has been, the improved system of candlemaking, as conducted at Belmont, has taken root over a large part of the Continent. The parent institution, however, stands, and is likely to stand alone in its magnitude. This company has not only illuminated the homes of a large number of the human family, but they have also created employment, by which means thousands of men are enabled to earn their daily food. Mr. Wilson, who is the managing director of the Belmont works, has proved himself a man of not only first-class business habits, but what is of perhaps more importance, he has evinced a care and solicitude for the work-people belonging to the establishment, which it would be well some other employers would imitate. In this gentleman's endeavour to improve the moral and social condition of the work-people under his charge, it reflects no small honour upon the company for the manner they second his efforts by liberal grants. This gentleman has established a complete system of education, both in connection with their large works in London and in their new colony at Bambro'-pool, on the Mersey; by which means the work-people are enabled to study mental culture suitable to their tastes and capabilities. Every inducement is held out to the young to improve their minds and imbue them with feelings of self-respect. The kindly and respectful manner in which the elder branch of work-people are treated is well calculated to make them feel that their employers have an interest in them above that of mere pounds, shillings, and pence. This is the true philosophy of employing heads, hands, and hearts; and it would soon produce a new order of things in this country if masters could see the force of treating their workmen as human beings, instead of mere machines, as is now too frequently the case. Were we attempting to describe the processes of manufacture in the Belmont works, it would be of little interest to the generality of our readers. If we imagine a stupendous chemical laboratory, with all sorts of distilling and numerous other apparatus, we will have a pretty fair idea of the place. The make and character of Price's candles are now known over the world; so that any description here would be superfluous. We cannot close this sketch, however, without some further notice of the new article produced now so largely at the Belmont works; we allude to glycerine. It is a curious fact, that the researches of scientific men have been the means of transmuting many articles which, a short time ago,

were looked upon as not only useless, but in some cases as an incumbrance, into articles more valuable than gold!! This has been particularly the case in reference to glycerine. We could name several other articles connected with manufactures where a considerable expense was involved, in getting clear of them, that are now esteemed valuable materials. This is quite in keeping with glycerine; at one time hundreds of tons of it were annually cast away as worse than useless. The wholesale price of this article now, at the manufactory, in London, is from three to four shillings per pound, or 448*l.* a ton; and if inquired for at a retail druggist's, the price will be eightpence an ounce, or ten shillings and eightpence a pound! We were right when we referred to the magic power of scientific men, when they waive their wands over inanimate matter (if there be any such thing). In this case, what was worse than useless is raised to the commercial dignity of being worth 1195*l.* 13*s.* 4*d.* a ton retail!!! We extract the following explanation of the nature and properties of glycerine from an account by Mr. Startin, surgeon to the London Hospital for Skin Diseases: "This fluid body, to which the chemists have given the name of glycerine, is a peculiar uncrystallizable, unfermentable, saccharine matter, found in animal fats or oils, and produced during their admixture and combination with alkalies, earths, or oxides. Thus, it is most abundant in the refuse of the soap or stearinemaker." Again he says, "it has the property of remaining fluid and resisting evaporation under any temperature to which the body can be exposed." Indeed, he says, "I have wetted a dinner-plate with it, and kept it in an oven while a joint of meat was cooked by its side, and the liquid has experienced no evident change or diminution. The facility with which this body mingles with water or other fluids, even oils, renders it an invaluable adjunct to lozenges, poultices, embrocations, and applications, the utility of which may consist, not only in diminishing temperature by evaporation, but in softening and relaxing the heated and inflamed skin. When glycerine is rubbed upon the skin it furnishes a thin coating or varnish, which even the microscope fails to distinguish as different from the ordinary secretions of the part." The value of glycerine in therapeutic cases are described as follows:

"In the use of glycerine internally I have had little experience; but it is a mild stimulant, antiseptic, and demulcent, and might be made to sweeten many articles of food or drinks for those invalids whose disordered digestive organs forbid the use of sugar. Pills made with a few drops of glycerine will not become dry; and syrups and extracts by its means are kept moist, as also free from fermentation and the formation of *cryptogamous* vegetation or mouldiness. I shall briefly enumerate some of the diseases of the skin in which I have employed glycerine as a local palliative with most benefit and success. These are, pityriasis, or dandriff, particularly that form of the disease which I have termed (*P. congenita*) lepra, psoriasis, lichen (in its advanced stage), eczema, impetigo, and prurigo. I have found glycerine also a useful addition to lotions in the encrusted forms of lupus or herpes exedens, and to various syphilitic or strumous

eruptions, having a tendency to produce foetid discharges and hard crusts, for which reason, also, it has proved of service in the scabbing stage of small-pox, to prevent scars and pitting. As a wash also for the hair, and for chapped hands, face, or nipples, combined with a little rose-water, and a few grains of borax to the ounce, the glycerine being in the proportion of one-eighth to one-sixteenth, this remedy furnishes, perhaps, *one of the most elegant and efficacious preparations which has been introduced*. It may also be combined with soaps, which it renders peculiarly softening and detergent, particularly for individuals who have a hard or dry skin.

"To this somewhat lengthy communication I will only add, for the guidance of those amongst your readers who may desire to make trial of this remedy, a few of the more common and useful formulæ employed at the Hospital for Diseases of the Skin, where glycerine is extensively used, notwithstanding its present high price (4s. to 5s. per lb.) proves a considerable obstacle, the funds of this institution being quite inadequate to meet the increasing demands upon them. I would premise that glycerine should *rarely ever be used undiluted* for cutaneous maladies, and that when prescribed in the annexed recipes, *the pure inodorous and anhydrous quality* is alone indicated, which is of a pale sherry colour, and of the consistence of treacle, care being taken not to employ a spurious article lately found in the shops, composed chiefly of honey, or sugar, gum, and water."

Here follow some Latin prescriptions, in the *Medical Times* journal, of which I translate a few for domestic use.

"For superficial burns, scalds or excoriations, tetters of the lips, nose, &c., after colds.—Take of gum tragacanth half an ounce, pure glycerine one ounce, lime-water two ounces, double rose-water enough to form a soft jelly: to be used by way of ointment or embrocation.

"For chapped hands or nipples, fissures of the lips, irritation of the skin of any kind, as after shaving or exposure to the sun, or for roughness, scurf, or dandriff, on any part of the skin.—Take of borax half a drachm, pure glycerine half an ounce, rose, elder, or orange-flower water half-a-pint: to be used as a lotion, with soft sponge or linen, to dab the affected parts.

"For baldness, following fevers, or other severe illness, or for falling of the hair from dryness and want of action in the scalp.—Take of strong spirits of sal volatile one ounce, tincture of cantharides two drachms, rosemary water half a pint, and pure glycerine half an ounce: to be used with a sponge or wetted hair brush twice a day.

"For rheumatism, gout, bruises, sprains, stiffness, &c.—Take equal parts of pure glycerine and camphorated oil, or opodeldoc, or chloroform, and use them as an embrocation on the parts."

From the above quotations, it will be seen that while Scheele was ruminating in the Magazine of Nature, he discovered one of her most mysterious productions. Fat would appear to be a valuable reserve in the animal economy, it keeps the system warm and comfortable, and guards the nerves against irritation. In our mind, there can be no doubt but fat owes all its best qualities to this very extraordinary substance.

There is one serious fact connected with almost every species of manufacture in this country at the present time. We allude to the unprecedented high price of raw material of every description. The great increase of population is certainly calculated to consume in proportion to its numbers. But our additional numbers would have made little difference comparatively speaking, had it not been for the extraordinary increase of the people's wants and their power to supply them.

Many of the discoveries that have lately been made in physical science have impressed large numbers of people with the idea that certain articles and materials of much value in public estimation would become greatly depreciated if not entirely useless. When gas, for instance, was being brought into use it was only reasonable for the people who were interested in the old methods of illumination to suppose that the price of fatty materials were sure to fall! We, remember well, when the Liverpool and Manchester Railway was near its completion, the prophetic warnings that were poured into the ear of the nation through the medium of the newspaper press. It was then argued, by men of large worldly experience, that the development of the railway system would infallibly ruin our splendid breed of horses which had cost the nation so much pains to rear. Notwithstanding the confident oracles of the wiseacres of those days, it is a fact that the railways themselves have not only created a demand for a large increase of horses, but they have also been the means of consuming oils and other fatty matter to an unprecedented extent.*

The solons of 1828 measured social improvements and the consequences of scientific discoveries by their own little standards. Even in the present day political economy is only understood by a select few. And although the Brothers Wilson have studied their own departments in the business, it is very questionable whether they are able to form anything like a correct estimate of the wide spread influence their establishment is calculated to exercise over large numbers of people who are in no way connected with their trade.

The oils and other fatty matter consumed by Price & Co., amount to somewhere about ten thousand tons annually. Large as this quantity may appear, it only comprehends a part of what passes through their hands as wholesale merchants. One would really imagine that if there were a few more houses like this, with such a grease devouring propensity, that they would absorb all the fat of the earth.

Since writing the above we have learned that these gentlemen have just made several new and important discoveries. In their chemical researches they have found a very valuable solvent, which they have denominated Sherwoodole. We have no idea from whence this name is derived, but we understand the article is peculiarly adapted for cleansing purposes. It will readily remove grease, dirt, or stains

* This puts us in mind of the clenching argument made by John Taylor, the literary waterman, in the reign of Elizabeth. This gentleman when joining in the hue and cry against coachee, but more particularly Hackney coaches, affirmed that their use would ultimately lead to the destruction of the locomotive power of men's limbs; and although there are a hundred coaches now for one sixty years ago, our pedestrian powers seem to be as good as in any previous epoch of our history.

from all classes of textile fabrics, leather, books, manuscripts, and wood. And as it is nearly inodorous it may be used at any time without offence to the sense of smell. The Sherwoodole is patented and sold at one shilling and sixpence per bottle.

We have now before us two samples of Price & Co's Patent Belmontine Candles, and they are certainly the finest specimens both in make and purity of material we ever witnessed. They are characterised by hardness and transparency, give a clear and brilliant flame, and will burn longer than either sperm or wax, and at a much less price. This fatty matter is obtained from a vegetable deposit found in India, which is similar to the peat found so abundantly at home.

The firm has just patented a new description of oil, which is denominated Belmont Spindle Oil. It is said that this material is a valuable lubricator for machinery, and is far superior to any of the oils now in use, and at the same time decidedly more economical.

From a statement made by Dr. Barlow in a lecture at the Royal Institution, it would appear that Price & Co., have made another new discovery in the region of fatty matter. This is an oily material, which will supersede all others now in use for illuminating purposes. It is said to burn with a more brilliant flame than the finest Colza oil, and may be had at a much cheaper rate.

From what we have stated in reference to this house, it would appear that its conductors are continually prying into the secrets of nature. They have waved the magic wand of chemistry in their laboratory over things not only useless in themselves, but in many cases highly disagreeable, when, lo and behold, valuable materials for man's use have come forth. Every transformation produced in this house has been the means of increasing the national wealth and the social comforts of the people.

There are numerous commercial establishments in London that exercise no small influence over the labour market of the United Kingdom, and there are others whose operations extend over a great part of the world. The London people have two railway carrying companies in their midst, whose operations are of the most gigantic character. These are Pickford & Co. and Chaplin & Horne. These mammoth firms have grown with the increasing requirements of the age. When the Great Eastern has become a familiar fact, it will cease to be a wonder. Had these establishments been set down among us with their extraordinary appliances, they too would have been looked upon as Leviathans!

The vast host of men and horses employed at their numerous depôts would form a large army. There is no other country in the world could support two such huge establishments, inasmuch as there is no other nation where there is such an immense quantity of the produce of human labour continually changing hands.

Lloyd's Marine Insurance Company is another of those mammoth establishments that only could have arrived at its present greatness in a country where industry and commercial enterprise went hand in hand. The property insured in this Institution is really fabulous. Their agents watch the shores of almost every coast in the world, and transmit their reports by a rapid system of communication.

Some of the wholesale houses in London may justly be looked upon as commercial wonders for the magnitude of their dealings. Amongst these we may notice Morris & Dillon's, in Fore-street. This house stands at the head of all others as wholesale linen and woollen drapers. The manner in which the business of this firm is conducted is almost peculiar to itself. Although Morris & Dillon do the largest wholesale business in their own line in the world, they do not keep a single traveller!! The saving effected in this department may be imagined when it is known that there are houses in the City who keep from twenty to thirty men on the road, at an expense of from three, to six hundred pounds for each annually. The peculiar economy brought to bear upon the business of this house by its internal management, must enable the firm to do their business upon advantageous terms to their customers.

There is another wholesale house immediately within the sound of Bow bells, that stands alone in its magnitude. When this place of business was opened it was entirely confined to the Nottingham trade. The commercial success of this firm enabled its partners from time to time to extend their business by adding new departments in other styles of goods. Their trade may still be termed a fancy one, and a large portion of their business is yet in goods of Nottingham and Leicester make. Of late years, Groucock & Co. have dealt largely in Irish laces and crotchet-work. When in Ireland we were informed that buyers are sent periodically from Bow Churchyard, who travel through the lace manufacturing districts, both in the south, west, and north of Ireland, where they purchase a great portion of the lace made in the country. We should say that there are more men employed in this house than in any other wholesale establishment in the United Kingdom. The number residing on the premises is said to be one hundred and twenty.

The two houses above named must exercise no small influence over the labour markets in the following places, viz., the West Riding of Yorkshire, the West of England, the clothing districts in the South of Scotland, Glasgow, Manchester, Belfast, Carlisle, Nottingham, Macclesfield, Derby, Leicester, Dublin, Worcester, and a number of small towns in the glove making districts in the West of England. The fact is, it would be impossible to calculate the number of brains, bones, sinews, and muscles these two houses keep in exercise.

As may reasonably be imagined, there is an immense amount of property in the hands of the retail dealers in London. In this department there is also one house that holds a position immeasurably above all others in the United Kingdom. To men who are acquainted with the business localities of our large provincial towns, it would be out of the question for them to imagine that the most gigantic retail establishment either in this country or any other should be found in the apparently out-of-the-way place in which Shoolbred and Co's stands. Tottenham-court-road is certainly no mean thoroughfare, either in its length, breadth, or the amount of business transacted in it. But if the commerce of the street was simply confined to this one house, we should say that it would exceed the amount of all

the retail dealers in many entire streets in London. When we say that there are somewhere about five hundred people who board and lodge on the premises, it will convey some idea of the really surprising commercial character of the house. When we come to describe the monster retail drapers' establishments in Dublin, we will have an opportunity of discussing the merits of large retail houses. It will be observed, that the servants in this establishment form a numerous colony under one roof. We are told in the scriptures to "go to the ant and learn to be wise." As a model of industry, the ant was, perhaps, the best example Solomon had at hand in his time; and if the Jews were as fond of hard work then as they are now, perhaps he was right in drawing their attention to the well-regulated habits of that little insect. It must be observed, however, that there were no Shool-breds in his day, otherwise he would have had a more fitting example of systematic industry for the imitation of his indolent subjects. Both the men and women in this modern commercial hive live well; we mean they have plenty of good food, and as a necessary set off, they have a sufficient round of work daily to satisfy any gourmand in both mental and physical exercise. What the annual receipts of this firm may be, we are not curious to learn, but we know one house in the same business in a provincial town whose annual receipts some years ago amounted to the nice little sum of one million sterling!

If, therefore, we were bold enough to draw an inference, we would certainly put an "s" to the tail of the above sum and change the character of the numerical adjective.

It is said that dispatch is the soul of business. In this house, with its army of assistants, we should imagine system was the presiding genus, and that order regulates the actions of both masters and servants.

There are numbers of men in London at the present time who form part of her growing history; and when they pass the last barrier, they will have left behind them memorials that will not soon pass away. The names and professions of some of these gentlemen have been stereotyped in legible characters over the whole world. What stranger has passed through any part of Great Britain that has not been introduced to the firm of Moses and Son? Or who has not scanned the seemingly Cabalistic Pantecnetheca on the blank walls of our large towns? The three brothers Hyam, and the father and son Moses, have long been identified with the ready-made clothes business of the kingdom. Whether this comparatively modern trade has been of real service to the community or not, we cannot say. One thing is certain, the public have enabled them to obtain important social positions. A good deal is said about the low standard of wages this class of men pay for their labour; but if the public will have cheap garments, we hold that they are equally as much to blame in the matter as the manufacturers.

There are numerous houses in London, the names of whose founders have been long wedded to her history in some shape or other. To notice these even in the most cursory manner, would occupy more space than we can spare.

Amongst those whose names have been blended with the advertising periodical literature of the age, we may mention those of Rowland & Sons the toilet perfumery manufacturers. Mr. Rowland figured in the advertising columns of the *Times* long before that Journal had earned the proud distinction of the "Thunderer." These gentlemen advertise over a great part of the world, and, as a consequence, their advertisements appeal to the people of different nations in their own tongues. Mr. Holloway has been before a large portion of the world during the last twenty years, and we believe there is not a language known in which a periodical with an advertising column is read by the natives, but have been honoured with his name in connection with his pills and ointment. We believe that these two houses alone pay an annual rental of at least forty thousand pounds for their advertising mediums!

During the last five years, other two gentlemen have entered the advertising arena. There are now few people in this country who are not familiar with the *Gaulic* name of Du Barry, and his revalenta food. This gentleman's advertisements figure in every newspaper and periodical over the United Kingdom. The other gentleman is Mr. Dakin, of No. 1 St. Paul's Churchyard. There are few people who pass along our leading lines of railway but must have become familiar with the form of one of our finest national buildings, as well as the high sounding character of his teas and coffees. Whether the afflicted seek the means of health, or men hunt for bargains in the columns of the press, one thing is certain that this means of publicity is now a stereotyped part of our social system, and the men we have named above have profited by it.

CHAPTER III.

SHEFFIELD.

MESSRS. CROWLEY'S SMALL CASTING FOUNDRY.

Towns are not unlike human beings, in as much as they are all more or less characterised by some peculiarity either in their social or physical aspect. The industrial associations of Manchester have conferred upon it the title of the Cotton City, although it is decidedly the most brickish of all brick towns between the Point of the Lizard and the Tweed-mouth. The manufacture of Sheffield, however, is very different in all its leading features, and may be looked upon as the antipodes of the downy city. The one place calls to our minds the softness and pliability of her textile fabrics, and we can imagine the dull monotonous sounds of her machinery with the click of her thousands of looms grating upon our ears. On the contrary, the other calls to our mind the hardness and ponderosity of iron, with the hot-blasts and the terrible heat of metal in a molten state. When a stranger makes his appearance in Sheffield, he does not require to look up at the front of

the new Meat Market to learn the name of the diety who presides over its brawny inhabitants. Everything around him indicates the metallic character of the place, and both the men and the atmosphere reminds him that he is in the region sacred to Vulcan! Sheffield, as a town, has little to recommend it to the attention of strangers. In our imagination it reminds us of one of those animals of the canine tribe certain ladies are in the habit of bestowing their surplus affections on, whose ugliness constitutes their principal beauty. If one can imagine a glorious battle royal to have taken place between two monster giants, and their weapons of warfare were streets and houses which they hurled at each other, and after the strife was over, the said streets and houses were allowed to remain where they fell; we will have no bad idea of the orderly arrangements of Sheffield. More than two-thirds of the town appears to be of modern construction, and although there is plenty of excellent freestone in the immediate neighbourhood, nearly the whole of the buildings are of brick. The fact is, that unlike all the rest of English towns of any note, there is not one single old house, or the remains of a solitary ruin to indicate that the place is not in its infancy! It would be unfair, however, to pass over the fact that the Sheffieldonians were once blessed with a feudal keep, and when it was in being and health no doubt they were proud of it. The locality that now bears the name of Castle-green, is well known to be sacred to black eyes, *scrabags*, and bloody noses. It may be noticed for the honour of the town, that the castle of Sheffield was converted into a prison, in which Mary of Scotland was immured, at the instance of her amiable and kind hearted cousin Bess.

Less than two hundred years ago there were not more than four thousand inhabitants in Sheffield. At that date it must have been a poor miserable place, as the country round it for miles was wild and sterile, and formed a bleak and dreary solitude. The immense and valuable fields of coal and other minerals which lie beneath the soil had not then invited the enterprise and industry of the people. The Sheffield whittle manufacturers must have been a spicy set of fellows in those days, and the man among them who could purchase a hundred weight of steel from Danzig, must have been looked up to as a man of consequence.

From what we have said above, you will observe, that Sheffield in its character as a town, possesses little or nothing to call forth the descriptive powers of a writer; there are no splendid streets, squares, or crescents—no magnificent public buildings or ruins sacred to the memory of family greatness, patriotism, or princely munificence.

Notwithstanding these wants of external embellishment, Sheffield is not without special claims upon all who take an interest either in the progress of British manufacture or the social condition of our industrial population. When the stranger emerges from the railway station into the open space, there are several objects which immediately arrest his attention. In the first place, he observes a large castellated building immediately beneath him on his right hand; this building will readily be taken for a baronial residence, but upon a nearer approach it will be observed the windows present a strange

appearance : the panes of glass are in keeping with the ancient character of the edifice, being small squares inserted into metal frames. Upon a close inspection, it will be seen that there is scarcely a whole pane of glass in any of the windows, and that the spaces beneath several of them are coloured with iron rust. The Sheffield people call this princely-looking castle a wheel. In Sheffield phraseology, a wheel means a building where machinery is kept for working a certain number of grinding-stones, and we believe this one is among the largest in the town. After the surprise produced by the wheel, the eye immediately takes in a vast number of brick cones and chimney-stalks ; these ventilators are continually vomiting forth huge volumes of smoke, which roll over the town like so many clouds, twisting themselves into a thousand fantastic shapes, and scattering their sooty treasures over the space beneath, to the no small delight of thrifty housewives and lovers of clean linen ! When the wind sweeps the valleys of the Don and the Sheaf, a great part of Sheffield is sure to be shrouded in a pall of living vapour impregnated with vast quantities of earthy matter, and ever and anon some of the stalks or church towers stand out in relief against some clear spot in the sky, and are again speedily enveloped in the rolling clouds. In the months of November, December, and January, Sheffield is continually covered with a dull, heavy, leaden-coloured atmosphere ; the proximity of the town to the central ridge of hills which divide Yorkshire and Lancashire, frequently denominated the backbone of England, is a means of exposing it to certain watery influences, and the passing clouds are apt to make unacceptable offerings of their liquid treasures into the burning sanctuary of Vulcan, during which occasions the streets and numerous dingy lanes wear the livery of seedy mourning. Sheffield has partaken largely in the general prosperity of the nation during the last sixty years. In the early part of the present century, the town was nearly confined to the lower part of the ridge which forms the fork of the Don and the Sheaf : since then the moor has been covered with bricks, mortar, and an industrious population ; the park, too, has been robbed of its rural character, and the north part of the town has extended itself more than a mile in length. Saville-street, which is a continuation of the town in this direction, can now boast of more large manufacturers in several of the leading branches of Sheffield industry than the whole town could produce less than fifty years ago.

In the early part of the present century, the Sheffield manufacturers were wont to reside on the premises where their business was conducted ; since then the bulk of them have been enabled to occupy suburban villas, and surround themselves with the artificial appliances of civilised life their forefathers never could have dreamt of. The sunny slope of Broomhill is now covered with numerous villas and mansions, many of which are built in good taste. This locality is the West End of Sheffield, and of course forms the aristocratic region of her more prosperous merchants and manufacturers. A very large portion of the town of Sheffield belongs to the Duke of Norfolk. We have heard that the revenue arising from his Sheffield estate

amounts to 60,000*l.* annually; and we are led to believe that the Norfolk family have been considerable benefactors to the Sheffield people. The late Duke laid out a splendid park, with footpaths and a beautiful carriage-drive, which he has thrown open to the public. This park commands a beautiful bird's-eye view of Sheffield and the surrounding hills, and the whole forms a delightful and healthy retreat for the inhabitants. An hospital stands on the hill between the park and the town that is worthy of notice; this building is a three-sided parallelogram, with accommodation for twenty male and as many female inmates.

The style of the building is of the rounded Gothic, and we never saw a more healthy or beautiful site made choice of for such a purpose. This institution was founded and endowed by one of the Earls of Shrewsbury. Some few years ago, before the new market was erected, and the other improvements which have been made in the low part of the town, the old hospital stood in a low unhealthy situation, immediately beneath where the Exchange now stands.

When these improvements were about taking place, the late Duke of Norfolk gave the site and erected the present beautiful building at his own expense. This institution was endowed for an asylum, for the number above stated of decayed widows of merchants, or widowers who had undergone a reverse of fortune. The men are allowed ten shillings a week, with coals and a certain quantity of clothing annually, and the females receive two shillings a week less, with coal and clothing. They are also cared for in a religious point of view, inasmuch as there is a very neat chapel in the center of the building, and a minister of the Church of England has his residence in the south wing. In the front of the building there is a beautiful lawn, ornamented with parterres and handsomely laid out walks. On the opposite side of the road which passes in front of the lawn, there is an object which possesses considerable interest, from the fact that it recalls to memory one of the most severe calamities that have visited this country during the present century. This is a triangular monument in a sort of bastard style of Gothic architecture. This monument is sacred to the memory of all those who fell victims to the cholera in Sheffield in 1832. We may here mention that the population of Sheffield in 1851 was returned in round numbers at 135,000; and calculating upon the increase of the previous ten years, the present number of inhabitants may be fairly set down at 160,000. For many years past the cutlery of Sheffield has been known and appreciated over the whole world. If a phlegmatic Turk requires to trim his beard, he uses a pair of Sheffield-made scissors, and if a Yankee enjoys the luxury of whittling a piece of wood, you may make yourself sure that the operation is performed with a Sheffield blade. The backwoodsman who fells the sturdy oak or majestic pine, plies his vocation with a Sheffield tool, and wherever a tree is cut into longitudinal sections, the work is almost certain to be performed with a Sheffield-made saw. Whether our jolly tars cut their junk, or a Hampshire-man slices his five-inch bacon, the operation is sure to be done with a Sheffield forged blade. The London alderman who practices division upon his daily allowance of animal

food, and the Indian who scalps his friend or foe, may thank the Sheffield workman for the tools that lighten their labour.

Whatever men may think of the relative value of metals, there can be no question that iron is by far the most useful. When iron is converted into steel, there are several processes through which it can be made to pass that raise its market-price above that of gold.

Although Sheffield sends her cutlery goods over the face of the world, she has a reputation independent of cast-metal scissors and unforged blades. The march of improvement during the last forty years, and the application of machinery and electricity to the working of metals, has not been lost sight of by the Sheffield people.

Some twenty-five or thirty years ago, there was a manufactory employed in making plates for men's shoes. The name of this firm is John Crowley & Co. The members are certainly somewhat older than they were at the time alluded to, but paradoxical as it may seem, their business is nearly as new to them now as it was then. The reason why it is so, is simply because if they know the character of the business they may have on hand to-day, it is no indication of what the nature of their work may be to-morrow. It may therefore be said to have a sort of kaleidoscopic character. When these gentlemen were confined to the shoe-plate business, they must have turned out immense quantities of that article.

Even now with their complicated business they still produce millions annually. These, however, are now looked upon in a secondary point of view. The Messrs. Crowley are among those men of the age who have caught the flood-tide of fortune. It is said that men who work in iron should know when to strike the metal! These gentlemen have given pretty good proof that in this matter they have been quite at home. In the old trade of shoe-platemaking, they were justly famed both for the character of their metal, and the beauty and finish of their castings. There is much force attached to the idea of a good name among the class of men who wish to stand well with the world. The attainment of this object is the sole ambition of numbers of people engaged in business, and when once they reach this goal, the commercial road becomes less rugged, and like a weight rolling down an inclined plane, its speed becomes accelerated at every move in its onward course. It is certainly a happy reflection to those gentlemen who are engaged in manufacture or commerce to know, that they have successfully overcome the difficulties inseparable to the establishment of their business, and have arrived at that honourable position, when they can look forward to the future with confidence.

Some few years ago, the large ironfounders throughout the whole of the country were frequently put to much inconvenience, trouble, and expense in getting their small castings done. This arose from several causes. In the first place, the metal used, although quite sufficient for large castings, was frequently found insufficient for small ones. In the second place, the moulds were awaiting in the necessary make and finish. This would very likely result from the idea of insignificance attached to the species of work, and as the business seemed of such little interest, the men were never so pro-

ficient in the style of work as they were in the more heavy branches. This may appear somewhat strange to men of common-sense, who are aware that the smallest wheel in a machine is as necessary as the largest; yet, we believe the above statement to be perfectly true. The Messrs. Crowley have relieved both the masters and men from the difficulties attending small castings. If an ironfounder or an engineer require a number of these things, all he has to do is to send drawings to this firm, and the goods will be made to order either by the ton or by the ounce.

If our reader will accompany us we will endeavour to describe the works belonging to this firm. This strange out-of-the-way-looking place is Kelham Island. We think we hear you repeating the name, and endeavouring to call it to remembrance. We can only say that this Island is not to be found in any of the ordinary geographies of the day. If you imagine you are making your journey of discovery in the winter, in or after a shower of rain, you will find the passage to the works a perfect slough of despond. The outside of the building is quite in keeping with the dirt and desolation that everywhere surrounds it. Indeed, the whole region of Kelham Island is rich in the most unmitigated mud. Imagine, kind reader, you have passed through the portal of this dingy sanctuary of Vulcan, the first glimpse will convince you that you have entered the burning regions of Pandemonium. Hundreds of men and boys are seen flitting about with their dark faces lit up with the fitful glow of the blazing furnaces. The noise of machinery, the dead strokes of ponderous hammers, and the roaring glow of the blast furnaces are perfectly overpowering to a stranger, and the workmen look like so many demons.

You observe a large number of ovens running down the centre of the premises. These are for cooking the metal after having undergone the process of being cast into the required form. To the uninitiated they look both very simple and very rude, but you may depend they are very necessary, and not a little expensive. I dare say you would as soon think of a Galwayman taking out a patent for a mud-cabin, as such a requirement being necessary for the protection of a right to construct an erection of this kind. You never made a greater mistake in your life, unless you called yourself up in a cold winter's morning to go a journey that should have been undertaken by somebody else you should have awakened. The insides of these ovens bear the impress of the elder Mr. Crowley's genius, and we have no doubt his better-half has had frequent occasion to think that her lord and master was preparing himself for an apartment in some lunatic academy while he was turning these huge ovens over in his mind.

It is our candid opinion that married men have no business while in their beds to make voyages of discovery, either in the mazes of science or the regions of fancy, whether they have ovens or castles in their heads. Suppose we have a quiet look into one of these metal bakehouses—

Here we have one that has been drawn sufficiently long enough to have had time to cool. You observe that the interior is in the form of a cupola. The fire compartments are below, and as combustion

goes on, the heat, when generated, spreads itself regularly through the whole of the oven. You see there is a species of division that runs up through the centre with a double row of square apertures; these openings allow the heat and flame from the fires below to ascend into the oven. You will necessarily inquire how the gases and earthy matter produced by the combustion of the coal are allowed to escape? If you turn your eyes to the left, you will see a descending flue; this of course will upset your notion of a chimney, where the idea of ascending has been associated with the escape of smoke. In this case, the smoke is made to 'dance Jim Crow' by passing down into a horizontal flue which runs beneath the whole of the ovens on the premises, and of course receives all their smoky offerings. This flue discharges its contents into the huge stalk you see at the lower end of the works, from which volumes of smoke are being vomited into the atmosphere night and day without ceasing. Mr. John Crowley, in his patent for this metal-baking house, claims—First, an improvement in the construction of ovens or furnaces for annealing, with a peculiar form of ashpit and descending flues; second, the construction of a new class of pots or cases in which his castings are annealed; these are made of fire-bricks or fire-stone, lined with wrought-iron plates. There are numerous other details, a notice of which would not be interesting either to you or the general reader.

Suffice it to say, these ovens not only economise the fuel in a very important degree, but they also distribute the heat with greater regularity. It may also be mentioned that this class of furnace can be used for annealing or steel converting. These gentlemen have taken out a patent for improving a certain class of iron. This they name their "Carburetted Malleable Cast Iron. By their new method it would appear that they are enabled to divest the metal of all impurities by which means it receives a most extraordinary tenacity. We saw some articles made of this metal subjected to the testing process, and such was the adhesive nature of the fibres that, although twisted and tortured about in every possible manner, they remained uninjured. Iron has lately been made to supersede the more valuable metals in numerous instances. For some time past these gentlemen have been manufacturing bells from iron. These instruments are characterised by clear musical tones. The sound appears to us to be something between that of silver and bell-metal. We understand they are used for clocks, alarums, and other domestic purposes, and what is of no small consequence, they can be had for one fourth of the price of those made of bronze. Among the numerous articles made by this firm, wheels for perambulators may be noticed. The number of these little articles turned out of the works annually is almost incredible. One of the leading articles manufactured by this house for several years past has been the "Patent Section Tapet," invented by Mr. B. Woodcroft, who holds a situation in the government patent office. This highly valuable appliance is used for weaving all manner of fancy fabrics, whether in wool, cotton, or silk. From the immense quantity made, it must be evident that the demand for this, to us strange looking instrument, must be very great.

A stranger, on being shown through the wholesale warehouse of this firm in Manchester, would be somewhat astonished to see the workmen shoveling small pieces of metal about as if they were pebble stones. These tiny articles are in all possible shapes, and for every imaginable use. In one corner may be seen innumerable little cog-wheels and pinions, and in another sections of circular plates of various sizes, which all seem to fit into each other like mosaic work. But the articles that would attract attention in the highest degree would be those of the numerous castings in high art. Many of these possess beauty of form, elegance of design, and sharpness of outline we could only expect to find in articles made of the higher order of metals. Some of these articles, after having undergone the process of electroplating, may readily be sold for the metals they are made to represent. As a proof of the amazing business done by this house, we may mention that they cover a space equal to an acre daily with their castings; and when we remember that some of these are not more than half an ounce in weight, it will give us some little idea of the very extraordinary character of their business. In this firm we have an excellent example of the commercial success arising from the happy combination of talent, industry, and untiring application. The everlasting detail of their business would be more than sufficient to drive some men mad. But so far as system can be applied to a business that seems to set system at defiance, they have subjected it to a *method* and *order* of their own; but Heaven help the stranger who should make trial of its management. From what has been said, it will be obvious that this is another of those modern branches of industry that has grown out of the onward march of our civilisation. And although it seems to have arrived at that stage when it requires no further development, there can be no doubt but every year will add to details.

THE CUTLERY TRADE.

We will now endeavour to give our readers a sort of a second-hand idea of the processes in the cutlery trade. Suppose, then, we have just emerged from the "Queen's Works." Perhaps our reader is not aware that her most gracious Majesty had a place of this description? The fact is, there are very few branches of business in the country that is not in some way associated with royalty. The building now occupied by the firm of Mapin, Brothers, is like some old gentlemen we have been acquainted with, it has seen other days! Before the wonderful go-a-head age of the rail, when bluff stage coachmen and brandy-faced guards shaped their coats and moulded their manners upon the free-and-easy system of black-mailism, the Queen had no works where these now stand. Instead of this large building resounding, as it does now, to the noise of hammers, the snakelike hiss of the quick-revolving grindstone, and the dull sound of the blowpipes as they give life to a hundred forges, the merry laugh of the stable-boy as he curried his 'osses, and the husky voice of the red-faced knight of the whip, were wont to be heard within its walls. Be it known,

then, to all whom it may concern, that this hammering, hissing, blowing, and blazing palace of Vulcan was at one time, in the memory of man, a dépôt for stage-coaches, horses, grooms, genteel stable loungers, and lazy-corner gentlemen, who were wont to crack their jokes with the passing travellers. We have no doubt but there are many sunny memories connected with this establishment; these, however, are now dreams of the past. At the present time, the building is a proof of the expanding trade of the town.

In describing the processes through which one article requires to pass, you will be in possession of nearly all the mysteries of the cutlery trade, if we except the profits. In the first place, you can imagine to yourself a bar of steel, commonly called an ingot. If either you or I should meet with such an unwieldy lump of metal in our way on the street, it is very probable we would allow it to remain. Clumsy and useless as the ingot may appear to the uninitiated, it is just so much unconverted gold, and the manner of effecting this transmutation will be seen as we proceed. In the first place, this bar is sent off to the tilt, where it is either beat and rolled into flat rods, or mangled into sheets of the thickness required. This metal, after being returned to the manufacturer, if in rods, is cut into lengths suitable to its intended use. If, on the other hand, it has been rolled into sheet-steel, it is cut into sizes by a pair of very delicate shears.

When the metal is cut into the required lengths, then follows the hardening process. We are now describing the method of making table-knives. The blades are next forged, after which they are sent to be ground. On being returned from the grinder every blade is carefully examined, and its soundness tested by being bent. All the imperfect blades are cast aside, and the general rule in the trade is, that the forger makes another blade without charge, in lieu of the unsound one. After grinding, the blades are buffed; this process is a species of polishing. You know that the best of blades cut a sorry figure without handles, these necessary appendages being supplied, the knife is formed, after which it passes into the hands of a female, who whets it upon a fine sandstone; and after she has carefully sharpened the edges of each lot entrusted to her care, she examines each blade with a keen practised eye, and if she observes the least flaw in any of them they are cast aside as wasters. While in the warehouse of these gentlemen, a young girl who was employed in this branch of the business cast aside what appeared to us to be a perfect blade, and when told we thought so, she put the knife in our hand, and though we examined it very minutely, we could not discover any imperfection in the blade until she pointed it out.

From what we learned from the proprietors of this large establishment, it would seem that the materials for knife-handles form no small item in the expenses of a cutler's business. The price of ivory ranges from 36*l.* to 40*l.* a hundredweight, and when cut up and selected, the choice parts are sold for as much as twenty-six shillings a pound. The shank-bones of the higher class of animals furnish a large quantity of materials for knife-handles. From the information we received, it would appear that the most substantial shank-bones of

oxen are imported from Russia, and the reason assigned is, that the animals have the privilege of living longer there than in this country. We are informed, however, that Australian and Cape bones are the best for knife handles, being equal in colour to London bone, and much heavier. We do not know what age the Russian cattle may be allowed to attain, but we all know that the muscular fibre of some of our own has a wonderful tenacity, and that it requires a man with his dental machinery in good order to make it any way suitable for the stomach! The best qualities of bone look equally as well as ivory, and it requires a practical eye to know the difference. This very excusable ignorance is not unfrequently taken advantage of by those of the retail dealers who cannot afford to keep a conscience. Pearl and tortoise-shell are much used for the finer quality of spring-knives, both of which are very expensive. The Sheffield table-knife cutlers must also consume an immense quantity of horn. This article would appear to be easily moulded into any shape required, and what is of no small consideration, it is low in price. Many of the table-knives are hafted with metal. These are mostly plated by the new process of electrotyping. Articles of this description are mostly for the foreign market, where the people are fond of showy goods.

There are four articles manufactured by this firm, the whole of which would appear to be of such a character as to allow little room for anything like diversity of form. These are table-knives, spring-knives, razors, and scissors. If we take the table-knife, it will be seen that the blade will only receive a limited number of forms, but when we take the handle into account, we shall see that there is a much greater latitude for variety in design than we imagined. Diversity of taste has been shown by the manufacturer of this simple article much beyond what one might be led to suppose.

In looking over the stock in this establishment we observed that there were not less than seventeen varieties in the mounting of one class of table-knives. The almost endless variety of design in the spring knives made in this house is such as we could not have imagined without having seen them. The character of the workmanship seen in some of the articles is highly ingenious, particularly the spring knives. Some of these instruments are furnished with a whole set of valuable and really useful tools. Here is one for instance that contains the following articles, viz., one large and three small blades. fleam, saw, button-hook, horse shoe-picker, lancet, tweezer, screw-driver and leather punch. An instrument, or rather set of instruments, like this would be invaluable to a man in many parts of the world. Although the knife trade requires good taste and no little artistic talent on the part of both employers and workmen, the real value of the articles exists in the superior character of the steel used in their make. Looking at any single specimen of a razor one would be likely to conclude that such a simple instrument would admit of very little variety in the construction of its form. This, however, is not the fact, inasmuch as the shapes given to the blades are almost endless. By far the finest work connected with the making of a razor is effected by the grinder. The beautiful workmanship put on

the blade in the process of grinding is occasionally of such an artistic character, that a person unacquainted with the business could never imagine such designs could be effected by the use of the stone. We had a razor put into our hands while in the works of these gentlemen that cost seven shillings and sixpence a pair for the mere grinding. The price of a razor is almost solely regulated by the labour there has been expended upon it. It is true that in some cases the mounting is an expensive matter to the manufacturer in consequence of the valuable materials he uses. Of course all this extra labour and expense is of no real value to the tool. One of Mappin, Brothers' shilling razors will perform the hair cutting operation on a man's face with as much ease as the most expensive tool they can make.

The process of forging in some of the branches of the cutlery business appears to us to require not only nice manipulation, but an excellent judgment of the nature of the material in use. So far as our own opinion is concerned, we look upon the forging of scissor blades as being one of the most particular branches in the cutlery trade. The variety of form in the handle parts of these little instruments require both quickness of action and much judgment in their formation. To a person unacquainted with the secrets of the business, he would suppose that the labour bestowed upon these little tools to be of much more value than what they would bring in the market when finished. Every branch of mechanical business has its own secrets and mysteries. There is one thing, however, must appear evident, that were it not for both the perfection and facility afforded by the division of labour system in the cutlery trade, many of the articles would cost the public five times the price now charged. In scanning over the numerous patterns of scissors in this establishment a person would feel puzzled to understand why so much ingenuity was employed in producing such a simple tool. But when we take into consideration the competition that exists in the trade, we will readily find a motive for straining after new designs.

There are many houses in the cutlery business in Sheffield much older than this one; but we should say that there are none that have evinced a greater spirit of enterprise. From what we can learn the chief ambition of the Messrs. Mappin has been to earn an honourable name in the trade by producing first class goods. It may be noticed that large quantities of what may be termed slaughter-house goods are manufactured in Sheffield. When these articles are sent out to the world they are found perfectly useless, and the Sheffield manufacturers are branded with the stigma attached to double dealing. There are certain classes of retail dealers who will and must have goods of an inferior quality; and when such goods are sold for what they really are, no one has a right to find fault. But it becomes a very different matter when edge tools are sold for the best cast-steel, when they are the very reverse. This sort of trickery having been practised by some of the Sheffield cutlers, the whole trade have had the credit of the dishonest conduct of the few. Taking the Sheffield manufacturers generally, we should say that their business is conducted upon a straightforward honest principle, so far as the character of their goods

is concerned, as those in any other business. We have made this observation in consequence of certain charges which appeared in the newspaper press in which the whole trade were branded for the dishonesty of a few of its members.

THE EDGE-TOOL TRADE.

No man can form any real idea of Sheffield and its extraordinary manufacturing character unless he has had an opportunity of visiting her numerous workshops. The number of articles turned out in one establishment alone cannot fail to fill the mind of a stranger with surprise. When passing through the premises of Messrs. W. & S. Butcher, we were told that these gentlemen made one hundred dozen razors upon an average weekly the year round. It will therefore be seen that this one house manufactures fifty-seven thousand six hundred depilatory instruments annually! The number of edge-tools made by this house must be very great. We were informed that they employ thirty-two men in this branch alone; and when it is considered that a pair of men can forge from a gross to a gross and a-half daily, we will be able to form some idea of the vast quantity of goods produced in this line. The tools we refer to are chisels and planes, plane-irons, &c. In making, this class of goods pass through the following processes—namely, forging, hardening, tempering, smithing, setting, grinding, and cleaning, after which they are ready for the market.

Upon an occasion of catering for information we had a conversation with Mr. Eyre (of the firm of B. J. Eyre & Co., Sheaf Works); that gentleman observed that they made from three to four hundred gross of articles upon an average weekly, the most of which were table-knives, and that they make use of the shank-bones of three thousand oxen weekly! There is one feature connected with the business that was brought under our notice when in this house, the nature of which we had no conception of before. From the information we had from this gentleman, it would appear that the firm of which he is a member have seldom less than two thousand pounds' worth of brown paper in stock. You will readily think that this quantity would be sufficient to set a man up in trade. We grant you that it would, and have only to add that there are few paper dealers who can afford to keep such a stock on hand. The paper kept by these people is distributed over the upper part of their premises, and every bale is marked with the date when received, and numbered. It is then allowed to season for several years, and the oldest date is always in use. Although the paper has been subjected to the drying process for such a length of time, the reams are always opened out, and the sheets are hung on lines for a considerable time before it is fit for use. By this method the paper is entirely divested of all moisture. You will easily understand why so much attention is paid to have this article perfectly dry, when you remember how very liable steel and iron are to be attacked with the disease of oxydisation from lying in damp sheets.

It is said that several of the Sheffield manufacturers in the file business are undergoing a process of commercial rivalry they would much rather be without. For some time past the Americans have been

cutting files by machinery. It is true the machine-cut files do not come up to the mark of those done by hand. Men, however, who reason upon the matter very justly, conclude that the machines in question may be improved to compete with hand labour.

File-making may be said to constitute one of the leading branches of trade in Sheffield, and employs more men than any other. It is therefore nothing strange that the manufacturers should feel a little anxious about this part of their business, more particularly when it is understood that the Americans are the best customers they have. It is said, however, that a new era is about being introduced. While we are writing, a deputation of gentlemen with mechanical heads has been sent to France upon a voyage of discovery, not to see the nakedness of the land, but to observe what the genius of invention has been doing. Some short time ago Miss Fame arrived in Sheffield, after having crossed the British Channel, with the glad tidings that some ingenious Gaul had fabricated a file-cutting machine simple in its mechanical arrangements, perfect in its work, and low in price. The deputation above alluded to have been sent to examine and report upon this new invention. Supposing this machine comes up to the full expectations of the Sheffield manufacturers, it is said that they will still find themselves "between the deil and the deep sea." The filemakers will rise in arms against the invention. The forgers will not forge the blades, the hardeners will not harden them, and the next class of men will not likely be in a condition to temper the files, and lastly, the grinders will be too rusty to smooth the faces of the tools for their rival. This species of anarchy will necessarily set in, wherever machinery is likely to supersede manual labour in Sheffield. Although the workmen would scarcely be justified in such a course by the law of right, such conduct could scarcely be blamed. There is little philosophy to be expected from hungry men. We are glad to bear testimony to the very general feeling that exists among the masters upon this subject. If machinery is to be introduced into Sheffield in the cutlery trade, it will be forced upon the manufacturers by the pressure of circumstances. They feel that it would be a serious thing for large numbers of the workmen; and as most of them have been greatly benefited by the labour of their men, they have no desire to see them displaced.

The file trade is a very important branch of Sheffield industry, and would appear to be almost as much divided as the cutlery among the various manufacturers. If you will just step over the way, we will now introduce you to a nursery of infant files, and endeavour to let you see how these innocents get their teeth. It will be a simple thing for you now to call before your mind's eye a number of steel rods, some flat, some round, and others convex—you can also imagine that you see them cut into lengths. These lengths are now sent to be forged. After this process is finished, the baby files are sent, not to a cradle, but to a wheel, where they are ground, after which their faces are washed, and then returned to the nursery. The next part of their training is to have their tempers qualified by softening; and after this is done, they are kindly handed to a set of men who supply

them with such teeth as the nature of their future avocations in life may require. It is not a little interesting to see with what mathematical precision the file-cutter intersects his tool with diagonal lines. Every stroke of his hammer produces a perfect cut. When the file is cut, it is tempered, then cleaned, and has its face oiled, after which it is papered up, and is then ready for the market. To look at this article, one would suppose that it could be made in any place where the properties of iron and steel were understood; such, however, is not the case.

We remember a case quite in keeping with the one supposed above:—When Mr. Judkins introduced the American sewing-machine into Manchester, some of the large master-tailors put them in use for certain descriptions of work—trousers, for instance. A girl with a machine could easily sew twenty pairs of these garments in a day. The poor tailors took alarm immediately, held meetings, passed resolutions, and denounced both the machines and their masters in a style of language anything but complimentary. It will be seen that the tailors had much the same sort of advantage the filemakers would have if the machines were introduced. The tailors did turn out, and have been doing so in various places ever since; but where there was one machine in use then, there are a thousand now; and if there have been a few small revolutions in society in consequence of the change, we think we are, nationally speaking, nothing the worse either morally or socially. It cannot be denied, however, that there has been a good deal of individual suffering, and so there would be in Sheffield if machinery were introduced into any of the leading branches of her business.

At the present time there are not less than six machines of American invention working away at the rate of we do not know how many man power. To see this knife blade forging automaton at work, one would suppose that a few more of them would produce blades sufficient for the whole civilised world. We believe the actual number of blades forged by these machines amounts to fifteen hundred gross weekly. The firm of Hunter & Son, who introduced the Yankee notion, did so in consequence of the arbitrary conduct of their men, who would only work under certain conditions, and at such times as suited their own convenience. The men have gone elsewhere, and the machines, regardless of trades unions, keep rattling away at the most savage rate.

There are several large manufacturers in Sheffield in the tool trade. This class of goods embraces saws, files, hammers, axes, adzes, hay knives, scythes, reaping hooks, hoes, mincing and cheese knives, tanners', curriers', and saddlers' knives, with a great number of various other articles in every day use. In being shown through the works of the Messrs. Sorby & Son, Carver-street, a large quantity of saw blades were pointed out to us that had just passed through the oil-bath. We were told that if one of these should fall to the ground, it would be almost sure to break like a piece of glass. After this, the gentleman who accompanied us, requested one of his men to bring a saw that had been tempered. The man did as he was desired, and placing the point of the tool on the ground he bent it into a circle. The change in the character

and condition of the metal as exemplified in the above circumstance, reveals to us one of those surprising mysteries in nature which we can only comprehend in part. In the hard steel we see that its cohesive quality is signally impaired, but when it has undergone the simple process of tempering, its atoms are not only more firmly united, but it has received a new property of a most extraordinary character—we mean that of elasticity. It appears simple enough to soften steel by decarbonising it; but by what strange law in nature it is made to assume such a new feature as that of resuming its form after the resisting power has been withdrawn, is certainly passing strange, and sets man's proud philosophy at defiance.

There is another curious feature in the nature of iron and steel. If either of these metals be allowed to undergo a process of external decomposition by being exposed to the influence of the atmosphere for a considerable length of time, its quality becomes greatly improved. Our attention was called to this subject while going through the establishment. Several large ingots of steel were lying about the yard. It was stated that they frequently allowed metal to lie in this manner for months, and that such steel was always used for the manufacture of articles of a superior quality. Taking what one would consider a commonsense view of the question, we would suppose that the metal, instead of being improved by oxydisation, would be impaired. It is not only true that there are more things in heaven and earth than those that are dreamt of in our philosophy, but even among the things we do know that appear to us apparently simple, there are profound mysteries which lie beyond the ken of human knowledge.

Saw making may appear to be a very simple business in the eyes of most people; so it is, and so is the process of making a steam-engine, a Bank of England note, or, indeed, anything else, if one only knows how. In this branch of the business, the ingot, tilt-hammer, and crushing-rollers, with the fancy shears, are in regular requisition. If you suppose yourself in the saw department, which we have just noticed, you will observe immense numbers of large sheets of steel looking somewhat blue!! These are cut into the required lengths by the aid of the shears. The first process after being cut is a very natural one in an infant saw, being that of teething. The teeth are cut with considerable rapidity, mostly by boys. The tooth-cutter is a sharp instrument at the lower end of a working screw, which is acted upon by a hand lever; every pull of this lever confers a full-grown tooth, and the teething in an ordinary saw only requires a few moments in the hand of the operator. After this the teeth are filed, and then the tool is hardened by being subjected to a powerful heat in an oven, after which it is immersed in an oil-bath. The next process is that of being *smithed*. After the saw has been hardened, it is all over full of inequalities. The *smithing* consists in hammering the tool until it assumes a perfectly level surface; after this it is ground, hammered, and glazed. The next ordeal is that of being blocked, which means that it is once more hammered; this time, however, the hammering is done on a block of wood instead of being done on a

metal plate as formerly. The next process it passes through is by far the most particular in point of nicety of workmanship ; this is what is termed the setting of the teeth. The manner in which this is done is by the operator striking every alternate tooth on each side of the tool, until he has finished the whole. By this means you will observe that the teeth on each side are thrown off the line of the body of the saw. The tooth part is therefore wider than the other parts of the tool, and allows the head to follow the teeth as it were. The next process is that of stiffening. This is done by another sharp baking on a hot plate covered with fine sand, after which it is rubbed through fine emery, shaped, and handled. You would have scarcely imagined that a simple tool like a saw would require to pass through so many different processes. After a saw has undergone the hammering process, as we have already seen, it is nearly as brittle as glass ; it therefore requires to be tempered down by being made to pass through another fiery ordeal. The management in this department of the work requires both tact and judgment, inasmuch as the real value of the article greatly depends on the tempering process.

STEEL WIRE DRAWING.

In looking at the manufacturing character of several of the large seats of industry both in this country and on the Continent, we cannot fail to observe a peculiar adaptability in some of them for the production of certain classes of goods. From what we have already stated, it will be seen that Sheffield stands alone in the cutlery business. It is a fact, however, worthy of remark, that although this town produces steel for a great portion of the world, there are certain articles made of that material in other parts of the kingdom it cannot make. During many years the people in and around Redditch and Studley have had the needle manufacturing almost exclusively in their own hands. The whole of the wire used in this business has been made in Sheffield and neighbourhood from time immemorial ; and yet, strange to say, although repeated attempts have been made to establish this business on the banks of the Don, all have proved failures. It is true there are a few needles made in the town, but the quantity made is so small, that it is not worthy of notice ; and we are led to believe that those made here are not by any means so good in quality as those made in the above-named places. In our opinion, it is equally strange that the Sheffield people never cultivated the armoury trade. One would imagine that no place could be found better suited for the manufacture of arms than where the metal was made ; yet they have allowed the Birmingham manufacturers to appropriate this branch of business to themselves.

Steel wire-drawing has long been a very important branch of the Sheffield trade, and it is one that requires very peculiar treatment. From what has been said, it will be seen, that it is a very ticklish metal to work, and under some circumstances it can scarcely be worked at all. A description of the wire-drawing business may not be without interest to the general reader ; it must be borne in mind, however,

that it is often very difficult to describe mechanical processes without the aid of diagrams, and in a manner sufficiently plain to be understood. In going through the works of the Messrs. Cocker, Brothers, we had ample opportunity of observing the mode of manufacture in all the various branches. We may here mention that the predecessors of these gentlemen were the first to draw wire from cast-steel, and if we mistake not, the trade is still in the hands of the members of this family. The works of the Messrs. Cocker, Brothers, stand on the north bank of the river Don, and face into Nursery-street. The building has nothing inviting about its exterior, being a huge pile of bricks and mortar.

In order to convey anything like an accurate notion of the business, it will be necessary to begin with the iron in the bar as imported from Sweden. It has already been observed that certain manufacturers who consume large quantities of steel require to convert their own, in order to have the material suitable for the different classes of goods they manufacture. As we proceed, it will be seen that in this business it is essentially necessary that the manufacturer should be able to produce, his metal in the conditions required for the different classes of goods he makes. The first thing that is done with the iron bar is to change its nature by converting it into steel; this is effected by roasting the iron in an oven from seven to nine days. The converting furnaces are all built on the same principle, and generally of a uniform shape, like that of an inverted funnel or a cone. The whole of these erections are built of brick. The fire grate is in the lower compartment of the cone, and the converting furnace is immediately above. These chambers are made of sufficient size to receive bars of the greatest length, and are generally calculated to hold between twenty and thirty tons of metal.

You will readily imagine that the bars of iron only require to be thrown into the ovens, and left to cook as chance may direct. This, however, is not the case; although the iron is placed in a pretty comfortably hot berth, it requires no little care to pack it so that it will not catch cold by being exposed to different variations of temperature. The manner of packing the bars in the furnace is as follows:—In the first place, the floor of the chamber is covered with a nice soft bed of wood charcoal, after which a layer of bars is placed above it; this layer is next covered with charcoal, over which there is strewn a quantity of fine sand of a peculiar character. The nature of this sand is such that it will not fuse with the heat of the oven. The grains of sand enter into and fill up all the interstices of the charcoal, which makes the whole mass comparatively air-tight. These alternate layers are continued until the furnace is full, after which the fire is applied. During the roasting process, the carbon of the wood and the oxygen confined in the sand and the metal would appear to act and re-act upon each other until a complete chemical change is effected in the nature of the iron. The process of conversion is narrowly watched by the men in charge, and convenience is left in the formation of the oven to allow a certain portion of the metal to be drawn before the bars have been thoroughly converted through. This class of demi-steel is used

for certain descriptions of work where the harder metal would be unsuitable. When the fire is drawn from the converting furnace, the oven is left open during several days to cool, and after the metal is sufficiently cooled for drawing, the bars are sorted according to their different degrees of hardness. The bars of iron, after leaving the furnace, have not only undergone an entire change in their nature, but they have also undergone a change in their external appearance. Before they are baked their skins are comparatively smooth; but after passing through that ordeal they come out blistered all over. All iron made by being fused with wood charcoal will blister more or less; and the reason assigned for this is, that while the iron is in process of being made, it becomes impregnated with a portion of the earthy matter from the wood charcoal. It may be observed that this is not the case with British-made iron, inasmuch as it generally comes out of the converting furnace with a skin as unruffled as when it entered. The next operation is that of breaking the bars into small pieces, after which the broken parts are cast into crucibles, and handed over to the tender mercies of the melting furnaces. The metal is here reduced to a liquid state, then poured into moulds of the sizes required, and assumes the name and character of cast-steel.

The steel is now ready to be operated upon for whatever purpose it may be wanted. To look at these ingots or blocks of metal, a person unacquainted with the working of steel in its rude state would scarcely be able to form anything like a correct idea how such unwieldy masses could be fashioned into all possible shapes at the will of the artisan. The ingots are now sent to the tilt, where they are beat into shape and good behaviour by ponderous hammers, after which they are submitted to the tender embraces of the rolling mill, by which means they are made to assume new forms. The great bulk of steel, when rolled for wire, is reduced to an inch in thickness. The process of wire-drawing now commences, and the most particular part of this business is in making the tools. Every piece of wire is drawn through a die of the size required for its classification. These dies are graduated from an inch down to a very minute size. When a piece of wire is being reduced by passing through a smaller die, the end of the wire is filed down to fit the hole, and when it is passed through the die, it is seized by a pair of callipers, fastened to a chain coiled round a windlass that is acted upon by steam-power—the person in charge having power to throw the machinery out of gearing on the spur of the moment. While the wire is in process of passing through the die, the friction is so great that it becomes heated to such an extent that it cannot be handled. Every fresh journey a piece of wire makes through one of these dies, it is well roasted beforehand in one of Mr. Vulcan's ovens. This is termed the annealing or softening process, and is tended with both much labour and care. There are a great number of these furnaces continually in operation in this work, and the men who attend to them look like as many imps flitting about the regions of Pandemonium. One of the most particular branches of the wire-drawing business in this establishment, is the making of pinions. There are as many as twelve grooves in

some of this wire, and we believe six is the lowest number in any that is made. When it is borne in mind that the grooved divisions in this description of wire must be as near mathematically correct as possible, and that the surface must be clean and smooth, it will be evident that the process of making it is one of much nicety. This wire is made of various sizes to suit the different purposes to which it is to be applied, and is used for watches, clocks, meters, and other small machines. The making of needle-wire is also a very particular branch, and demands both much care in making, and preserving from the influence of moisture after it is made. After this wire is drawn, it is cut into lengths of twelve inches, after which it is packed into airtight cases, the whole of which are numbered with the sizes of the wire contained in them. The manufacture of steel springs for watches and other timepieces, form another important branch of the business of this house. This material is so well known to most persons, that it requires no description. We may mention, however, that a great portion of both this and the pinion-wire are made for the Continental markets. The Messrs. Cocker, Brothers are famed for their watch motion-wire. This article is calculated to furnish a pretty good idea of the truly wonderful tenacity of steel when it has been converted under the proper conditions. This wire is so extremely fine drawn, that it requires a better vision than ours to see it without the aid of glasses. We believe its price in weight is equal, if not greater, than that of gold. We find, upon calculation, that twelve pounds' weight of this wire will produce the nice little measurement of 13,270,040 inches! Some of our arithmetical readers may reduce the above figures into feet, yards, and miles, and furnish their wonder-loving friends with the result. Heckle-teeth is also another important branch of manufacture in this house: these articles are supplied to wool-combers and flax-dressers. We are not aware whether the Messrs. Cocker, Brothers were the first to introduce steel-ribs for the framework of parasols and umbrellas, but of late the manufacture of these articles has become a considerable branch of their business. This species of framework has in a great measure superseded the use of whalebone: these ribs are equally as elastic and as durable as the bone; and what is of no small importance, the supply can always be made to keep pace with the demand. It is necessary to say, that the whole of the articles we have noticed above have to pass through the tempering process. Certain descriptions of wire require to be made very hard, while others again are more pliable. The pinion and heckle-teeth wires may be looked upon as the most stolid and stiffnecked members of the family; while the watch-springs and watch motion-wire are of the tender and docile character. The great secret of the whole of this business lies in the die-making; these articles require much judgment, and, in some cases, exceedingly nice manipulation. The large dies are rude, unwieldy-looking blocks, and appear so solid that one can scarcely imagine that any power to which they could be submitted would injure them. Notwithstanding their great strength, they are frequently torn piecemeal. To look at one of the dies through which the mo-

tion-wire is made to pass, a person would wonder how a hole so minutely small could be drilled in such an unwieldy piece of metal. While the dies are being made, the steel is in the soft state, and when finished, they are hardened sufficiently for the labours of their calling.

The most particular branch of the die business is that of cutting those for the pinion-wire; this work is not only extremely fine, but the grooves must be done with as much exactness as if each division was a point on a compass dial; every line must be in its own place, as the least irregularity in one of their parts would make the tool perfectly useless. Some few years ago this business was solely confined to three families; and what is worthy of notice, the trade was perpetuated in those families, by hereditary descent from father to son, for many generations, during which time no stranger was ever initiated into the mysteries of the trade. One of those families was located in Warrington, and the other two resided in Oldham and Macclesfield. While the business was in the hands of these close-burgh gentlemen, pinion-wire must have been a very expensive article, inasmuch as it was then solely made by hand. We should say that the Messrs. Cocker, Brothers can now produce more wire of this description, in one month, than the old makers could have done in twelve; and, as a necessary consequence, the article has been reduced to less than one-half of the price formerly charged.

The enterprise of these gentlemen has been the means of calling down upon their devoted heads the approbation of the jury in their department at the Exhibition of 1851. The jury of the Paris Exhibition, in 1855, treated them in the same manner their countrymen did, by giving them a first class medal. Since then they have had a medal of honour conferred upon them by the Society of Art and Industry in London. These honorary distinctions, although bearing directly in favour of the Messrs. Cocker, reflect no small honour upon the town of Sheffield. It may be observed in this place, that the Sheffield manufacturers carried off above sixty medals at the great Exhibition of 1851. Such acknowledgments of well-founded merit are highly calculated to stimulate enterprise and excite honest ambition. The well-conducted enterprise of any member among the manufacturing community in Sheffield cannot fail to be of advantage to the whole.

STEEL BELLS.

It would be a difficult matter to say what can or what cannot be made of steel. A very few years ago the dreamiest speculator in possibilities could never have thought that the world could be circumnavigated in an iron ship with her standing rigging made of metal cordage. The electric telegraph and iron vessels are now great facts; and we are on the eve of having metal Leviathans to do the carrying business of the world on the highways of the ocean, that will be equal to floating cities.

We have now to notice another application of iron, after having been transformed into steel. During our sojourn in Sheffield we

learned that the Messrs. Naylor & Vickers were making church-bells of steel; and having some curiosity to see the method of manufacturing, we called upon the firm, and were kindly taken through their large works. The bells made by this firm are from the patent of E. Riepe. We believe the principal difficulty in making bells of steel was in preventing the liquid from solidifying too rapidly in the process of casting. It appears that the patentee has effectually managed to make the fluid metal subservient to his will in this matter. By his process bells of any weight may be cast with as much facility and security as could be done by using bronze metal. The casting shop in this work is an immense large shed with huge pits sunk in the floor, where the moulds are placed. A large number of furnaces range along one side of the building; these are made to hold a sufficient quantity of crucibles to supply any amount of metal that may be required for the largest castings. After the bells are cast they are finished and their soundness tested. In this part of the building bells of various sizes are suspended, in order that their sounds and notes may be proved by intending purchasers. Bells are now made in this establishment up to 6,000 pounds weight. The following advantages are claimed for steel over bronze bells—namely: steel bells of the same diameter and depth of tone are of much less weight than those made of bell metal, and therefore easier to ring, and what is of no little importance in an economical point of view, as well as convenience, they require less strength in the construction of their supports; secondly, they are purer in tone and more melodious in sound, in consequence of the powerful vibrations produced by the superior elasticity of the steel, and are heard at a much greater distance than the ordinary bells; thirdly, steel bells can be made with greater exactness of tone when chimes are made to order; lastly, the cost of a steel bell of the same weight of a bronze one will only be one-half, but as a cast steel bell only weighing two-thirds of a bronze one will equal the latter in both diameter and depth of sound, the actual cost of a steel bell will only be one-third of the price of one made of bronze. It will therefore be seen that steel bells combine the following advantages over those made of bronze:—An improvement both in the power and quality of the tone; a greater facility for placing and ringing them, in consequence of their diminished weight; and a material saving in the cost. It is also said that steel bells are not liable to be acted upon by atmospheric changes in any perceptible degree so as to affect their tones, and every bell is warranted against breaking under ordinary treatment for twelve months. It will thus be seen that steel bells are a decided improvement over those made of bronze, both in a scientific and a commercial point of view.

A steel bell weighing 680 pounds can be purchased for the small sum of £28 6s. 8d., while a bronze one of the same diameter would cost £98 8s! Although these inducements to purchasers are matters of no small consideration, there are others not to be overlooked. Those gentlemen who have paid any attention to the old church-towers in various parts of the kingdom, are aware that some of the finest

chimes of bells are suffered to remain as mute as fishes, in consequence of their great weight endangering the buildings by ringing. By using steel bells this serious difficulty is nearly, if not altogether, obviated, inasmuch as we have more than the quantity of sound with about two-thirds of the weight. The economy of steel bells is still further demonstrated by the manner of hanging them. A bell of seventy-two inches in diameter can be hung with cast-iron yoke, stay-bar, wheel, and moveable axle for the sum of £17 10s.

Seeing that we live in an age in which the early ecclesiastical architecture of the country is being revived, there is little doubt but a taste for church bells will again prevail. A good chime of bells is calculated to give a character to a whole district. There is no species of musical instrument that has been so intimately interwoven into the lyrical poetry of the country as the "merry bells of old England." There is something poetically pleasing, as well as a soothing influence, in our Sunday chimes. The merry chimes conduce to joy and gladness, and the solemn tones that call to prayer, or the office of departed friends, fills the mind with reverence and solemn warnings. We are aware that the utilitarian spirit that has regulated men's thoughts and actions for many years past has been opposed to ornamentation in anything connected with religious buildings. And we know that the antagonism of dissent produced a feeling against either bell music or any other, except the nasal sound of droning voices. During the last thirty years, however, a revolution has been quietly passing over the face of society. Some of the evangelical sects, who at one time delighted in the more than Spartan barnlike appearance of their places of worship, have lately become imbued with tastes and feelings more in keeping with the spirit of the age. Our Pugins and Ruskins have directed our minds to the beauties of architecture, and have been the means of elevating our tastes in reference to the graces of ornamentation in connection with sacred buildings.

There is but little doubt of steel bells coming speedily into general use for churches, &c. We understand that several churches have been already supplied with peals. There can be no doubt but a large business will be done with the smaller class of bells made by this house. Some of these must be very useful for steam-boats and factories; and as they are so much cheaper than the other, it is very likely that bronze bells for such purposes will shortly be superseded altogether.

We have introduced this subject as offering a fresh proof of the great value of iron and its convertibility into such a surprising number of uses. There is no other metal upon which men employ so much of their intellectual labours, nor is there any other that could afford the same remuneration for their time and trouble. The gentlemen whose names we have connected with this chapter have found valuable diggings in the black-band seams of their native country. We believe they employ several hundreds of work-people. The growing demand for steel and the extraordinary rapid development of the Sheffield trade have been the means of swelling their manufacturing business into huge dimensions within the course of a few years.

This establishment is well worth a visit from such gentlemen as have not had a means of witnessing the steel-converting process. Immediately before we saw through the work one of Nasmyth's ponderous steam-hammers had been erected. It is really surprising to see with what ease this huge piece of metal can be directed. The man in charge can allow it to fall with sufficient force to crush the head of an elephant into atoms or simply bruise the body of a fly! There are three tilt-hammers in one department; one of these mighty pounders gives a gigantic stroke of seven tons; every concussion of this monster makes the earth tremble as if in dread. The thundering noise that vibrates on the ear of a stranger in this department is sufficient to bewilder people, even with well braced nerves. When we add to this the infernal noise of the rolling machines, the fiery flames issuing from the roaring furnaces, and the sparks flying off from the heavy masses of metal as they are being operated upon by the hammers, will give some faint idea of this Cyclopiian Temple. When strangers are looking on here they do not require to be told to stand out of the way in this devils' drawing-room!! Scores of men in a state of semi-nudity are continually flitting about with huge bars of steel, whose incandescent appearance would almost frighten a full-grown Salamander. There is no wonder that the men in this department of the work should swallow large quantities of beer. The fact is, if their systems were not sustained with something of the kind the fluid part of their bodies would fly off and leave them mere human cinders! We think it is rather questionable how men with certain temperaments could support their systems in such employment by the use of water alone. When the fluids are passing off by copious perspiration, a continual recourse to water, in our opinion, would weaken the blood, and therefore be the means of seriously affecting the health.

STEEL SPRINGS AND RAILWAY BUFFERS.

We have before had occasion to refer to the interesting fact in social science of how one branch of industry is frequently the means of introducing others. The railway system, with its wide spread interests and extraordinary ramifications, affords an apt illustration of the above statement, as well as proves how reproductive labour is calculated to act upon the social condition of the community. There are few towns in the kingdom that have felt the beneficial influence of the railway system more than Sheffield. Since the year 1845, steel converting furnaces have been rearing their conical heads in all parts of the town wherever available sites could be obtained. The capital now employed in this business must be immensely great, and its healthy influence is felt far beyond the confines of Hallamshire. We have observed that the best steel used in Sheffield is made of Russian and Swedish iron, the consequence is that a large portion of British capital finds its way into these countries. A few years ago the most of the steel made in Sheffield was consumed in the various branches of the cutlery business, and supplying the Birmingham and Redditch

markets. Since the railway system has become so greatly developed, the steel trade has assumed quite a new feature in having swelled itself into the most important branch of industry in the town. There are several houses at the present time whose principal business is in the manufacture of steel springs for railway carriages. While in Sheffield, we had the pleasure of being shown through the Atlas Works in Saville-street. It has already been remarked that this street has lately become the most important manufacturing locality in Sheffield. The choice of this situation by the large steel manufacturers has been one of convenience in more ways than one. The ground being the property of the Duke of Norfolk, we have no doubt but it was obtained upon moderate terms. By far the most important consideration is its proximity to the Rotherham Railway which runs parallel with the street its whole length. In an economical point of view this circumstance is one of great interest, as the saving of carriage both in coal and other raw material must amount to a large sum annually. Branch lines are connected with the whole of the works in this thoroughfare, by which means the railway trucks can be loaded on the premises without the trouble and expense of cartage. The Atlas Works were commenced and partially finished by a firm composed of three gentlemen about four years ago. It is said they had not sufficient capital to carry on so large an undertaking; be that as it may, they were obliged to suspend operations after having spent a considerable amount of money, and left the building in an unfinished state. During the last eighteen months this property has been purchased by Mr. John Brown. This gentleman has not only completed the building according to the original plan, but he has greatly enlarged it. The two leading branches of business in this establishment is solely connected with railway work—these are carriage springs and buffers. The spring trade is a very heavy one, and requires a large capital to carry it on with advantage. The general reader would feel very little interested in a description of the manufacturing processes of this work. We may mention, however, that every spring when made has its strength tested on the premises. The resisting power of some of the springs for goods trucks is very great. To look at the substantial character of some of these springs, one would imagine that they were sufficiently strong to bear the pressure of a little world. But when we think of the savage duties they have to perform, and the really Atlas weights they are required to bear, with their liability to be torn assunder by concussions, it will be evident they can neither be made too strong nor too securely.

The most interesting department in this work is the one in which the buffers are made. This necessary appendage to a railway carriage is one on which much ingenuity has been expended, in order to obtain the greatest power of resistance, and consequently the greatest amount of safety.

The buffers made by this gentleman are upon a principle of his own, for which he has obtained a patent. We are not aware what new feature these articles present, but from the immense quantity he manufactures, it must be evident that they are characterised by some

special improvement. From what we learned, the proved-resisting power of each buffer is seven tons, and we believe they occupy much less space than those in use before his was introduced. For some years Mr Brown has been making seventy tons of springs weekly upon an average, and two hundred buffers. In the one case we have 22,440 tons of springs, and in the other 10,000 railway buffers. One would almost imagine that the above quantities would be almost sufficient for half the railways in the kingdom, but when it is remembered that many of the railway companies make their own, and that there are numbers of other gentlemen in the trade, those made by Mr B. will only be a tithe of what is required. One of the principal things in making springs for buffers after using good steel is their tempering. Every spring when made is fitted into a block of wood, and when this is done both are put in a cast iron case, with just sufficient room to allow play for the action of the spring. The casting of the buffer cases employs a large number of men, and the space required for this department is very considerable. Like all the other steel manufacturing establishments, this work has its brick cones, tilt hammers, and rolling mills. The number of hands employed in this work is between four and five hundred. There are several gentlemen in this branch of the Sheffield trade, and we believe it is now one of the most steady sources of industry in the town. Before finishing our notice of the steel and iron branches of trade in this great workshop of the world, we have a business of another description to introduce, and one too that has lately become of much importance in a commercial point of view. People who are not in the habit of noticing and comparing those things that come under their daily notice, have little idea of the struggles and anxieties, as well as the artistic labours that are expended upon such articles as appear to them *common things*. This fact will be made apparent in the business we are going to introduce. Although we have had opportunities of observing nearly all the trading branches of British industry, from match making to the fabricating of steam engines. We must confess we had little idea of the mechanical skill and artistic talent required in the successful prosecution of the stove, grate, and fender manufacture, until having seen through the works of Messrs. Robertson, Carr, & Steel. The germ of this business may be said to be in the conception formed in the mind of the artist! The first and most important process is in the designing room, or over the midnight lamp where genius robs Morpheus of his nocturnal sacrifice. In this department there is a continual strain upon the creative faculty of the mind, in order to produce something new. It must be borne in mind that the mental labour attendant upon this business is almost entirely wanting in the stimulants to fame that prompt men to action in the higher departments of art. One of the greatest difficulties in this business appears to us to be that of adaptation and producing harmony and general congruity. There are certain occasions where ornamentation can be applied without any great amount of either taste or judgment, but in this business the decorative art requires a very considerable amount of nice discrimination as well as a thorough knowledge of the rules of harmony in the combination of form. The

ever fruitful field of Flora affords an inexhaustible store, both of form and colour, and geometrical figures can be made to assume an almost endless variety of the most graceful combinations for works of art. The latter may be supposed to be the most applicable to this branch of business.

It must be evident, however, to any person who has paid attention to the subject before us that those who are employed in the profession do not confine themselves within the limit of any narrow range, or bind themselves by conventional rules in their notions of the decorative art. In this establishment we observed that animated nature, with its majestic and graceful forms, were freely made use of. In the fender department both animals, foliage, fruits, and flowers are blended together in the most harmonious manner; and in some instances architectural designs were made subservient to beauty of arrangement in a very pleasing manner. To people of artistic taste it is easy to see the difficulty there is in applying the decorative art to such articles as grates, stoves, and fenders. The chimney recesses, with their flat jams, are stupid subjects to bring into graceful relief; and it must be evident that it is a troublesome task to relieve fenders of the peculiar stiffness that naturally belongs to them. These difficulties, however, have been pretty successfully overcome of late years by the enterprise and good taste of men engaged in the trade. We were informed that some of the most expensive designs produced by this firm frequently prove serious failures in a pecuniary point of view, in consequence of their limited sale. Many of the higher class of grates made by these gentlemen can only be purchased by the nobility or people with large means. One of these articles was pointed out to us while in the show-room valued at 150 guineas. The design of this grate was an imitation of portions of the celebrated gates at Florence, by the immortal Ghiberti. After leaving the show-room, we passed into the modelling department. In this place, the models are formed of a plastic composition; from these other models are made in wax. In the second model department, the designs are finished, and from these the castings are made. In this business, the moulding department is a very important part of the establishment, in consequence of the immense amount of detail there is connected with it. Passing on to the fitting-room, we are introduced into the society of a large number of busy artisans, who are engaged in putting the different articles together. In this place, a curious medley meets the eye of a stranger—disjointed scroll-work, trunks and branches of trees, wings of fowls and legs and arms of human beings, with flowers and fruit, are seen lying about in heterogeneous confusion. We may mention that nearly the whole of the decorative appliance, both for grates and fenders, is in the mountings. Many of the grates are fronted with burnished steel, and decorated with bronze mountings in every possible style, from the chaste but severe Grecian to the *Renaissance*, with its elaborate ornamentation. We were much pleased with some of the designs in the early Gothic. It may be a matter of taste with us, but we confess we are always pleasantly affected with the simple and solid arrangements of this style. However much the

select few among us may admire the beauty and elegance of the Grecian architecture, we are satisfied that the prevailing taste of the British people is wedded to the Gothic. Notwithstanding the high state of civilization to which we have attained, we neither have the chaste taste of the Greeks, the majesty of thought that inspired the Romans, nor have we the artistic genius that characterises our French neighbours. In our opinion, nothing could afford a better proof of our national leaning to the early ecclesiastical architecture of the country, than our being obliged to have recourse to it in the erection of the only real national building we have—the British Houses of Parliament.

Perhaps there is no department in this establishment more interesting than the chasing-room. This process not only requires an excellent taste in the workman, but it also demands a peculiarly nice method of manipulation. A single stroke may spoil a basket of fruit or ruin a beautiful bouquet of flowers. The fact is, every article passing through the hands of the workmen in this department requires the utmost care, as every line must be in its proper place, whether it forms a part of a leaf or an animal. So far as the above description is concerned, it only refers to the ornamental part of the work. Many of the best quality of grates and fenders require to pass through a number of different processes we have not noticed on their journey from the moulder to the finisher. It has already been observed, in reference to the cutlery business, that one of the most expensive and particular branches of the trade is the grinding, so it is in this. Many of the best quality of grates are sent out with the impress of the grinders' beautiful workmanship. This part of the work is very severe, and attended with much danger to those employed in it, in consequence of the large size of the stones and the rapidity of their revolutions. In the finishing department (which is here a very large one), the goods are prepared for the saleroom; and the next consideration is one in which the manufacturer is at all times particularly interested, we mean the sale of his wares at a remunerating profit!

This branch of native industry would appear to have increased very considerably in Sheffield during the last thirty years, in which time it has been undergoing a succession of improvements. In order to appreciate the altered character of this trade, we only require to compare some of our modern grates with the best sorts of those that graced the halls of our ancestors, and the difference will almost appear as great as that which exists between our carpeted rooms and the rush-strewn floors of our forefathers. Besides this firm there are several large manufacturers in Sheffield, and one in Rotherham; but we believe this stands among the first in the trade for the highest class of goods. Between Sheffield and Rotherham, we should think, there are at least from 1,500 to 2,000 men employed in the different branches of this business.

GAS APPARATUS MANUFACTORIES, ETC.

We have again to invite our readers to accompany us to Saville-street, where we will introduce them to an establishment that may be

said to stand alone, as to the character of the business, and the appearance of the building. In our previous articles on Sheffield we have endeavoured to describe the leading branches of her industry, and convey some little idea of the surprising progress that must have been effected in her manufacturing and social condition during the last forty years. The sketches are necessarily imperfect for the want of statistical data ; but as they have been written with a view to interest the general reader, rather than furnish information for the political economist, we trust they will not be without their value in a historical point of view.

In the early part of the present century, as has already been observed, the science of chemistry engaged the attention of a large number of men, and one of the most valuable of their discoveries was that of carburetted hydrogen gas. There are thousands of men living who remember the time when the twinkling oil lamps in Pall Mall were for ever extinguished by gas. When that new and mysterious agent cast its cheerful rays over the expanse of that aristocratic region, the burly chairmen and sleepy-headed Charlies wondered what other miracle would next astonish the Browns !! This light of *other nights* was the dawn of a new era, and with its introduction many of our old social appliances passed away. Since then society has been blessed with a succession of other lights whose cheering influence has been felt over the whole face of the civilised world. Gas is not only important as an agent of light for illuminating our homes and places of business, but it has also been found valuable in its sanitary influence.

The introduction of gas, like many other new social appliances, has been followed by a train of other industrial pursuits. It would be a difficult matter to say how many new branches of business the manufacture of gas has given birth to ; a very small amount of consideration, however, will prove that her progeny is by no means small. Taking a commercial view of the manufacture of gas, as it now exists, in this California of black diamonds, it will be evident that it is a great source of national wealth. In the year 1819, the late Mr. Charles Macintosh, of water-proof notoriety, entered into a contract with the Glasgow Gas Company, to take off their hands what before time had been to them a nuisance, for which he was to pay a large sum annually. In this case the modern chemist did more than the alchemists of old pretended to do ; by his magic power he transmuted a filthy and offensive matter into materials more valuable than gold. One of the principal branches of industry called into existence by the manufacture of gas, has been that of the gas apparatus maker. At the present time there are few trades more intimately wedded to the decorative art than this. Indeed, there are few trades connected with our domestic arrangements in which a greater amount of artistic taste is employed. It is true that many of our gasfittings are characterised by plainness ; in several departments it is necessary that it should be so. But it must be obvious to the most common observer that many of our private dwellings, shops, halls, and public institutions, owe much of their decorative character and ornamentation to the genius of the gas apparatus manufacturer.

So lately as 1848, the firm of William Couts & Co. planted a new branch of business in Sheffield, and erected by far the most elegant and commodious range of buildings in the town. The site of this establishment is on the south-east side of Saville-street; it is built in the Venetian style of brick and faced with stone, having an ornamental centre. The facade is eight hundred feet in length, and the entire erection covers somewhat more than two acres, and is lighted by nearly four hundred windows. Generally speaking, the peculiar nature of the business carried on in Sheffield, affords few inducements for the erection of handsome buildings. The warehouses and workshops were therefore the most gloomy, dull, dirty, and monotonous looking places it is well possible to conceive. The erection of the Atlas works (this is the second of the name) in Saville-street, has been the means of altering this state of things to a considerable extent. During the last seven or eight years, many large and really splendid erections have been built in keeping with modern taste and regardless of expense. There are several distinct branches of business carried on in this establishment, but the manufacture of gas fittings may be said to be the leading one. Before this work was opened in Sheffield, the whole of this business was confined to Birmingham. The speculation of transplanting an old established business to a new locality is often attended with dangerous consequences to those immediately connected; and in this case, many of the Sheffield people looked upon the introduction of this one with considerable misgivings as to its success.

The large and magnificent show-rooms in the Atlas works are filled with a splendid and valuable assortment of gasaliers and lamps in every possible variety of design. In this business artistic taste has a wide field to range, inasmuch as every available species of ornamentation is seized upon. In the designs of the gasaliers we have all the various orders of architecture lending their graceful lines and multitudinous forms. But the great source from whence the leading features of the decorative art is taken advantage of, is from the inexhaustible magazine of the flora of the world. While lingering in the show-room, beneath hundreds of pendant gasaliers, and an everlasting display of brackets with their strait lines, curves and zizzags, putting one in mind of the Alhambra, a gasalier was pointed out of a very beautiful construction; in design this article embraces a variety of styles, but its leading and most graceful characteristics are those which have been copied from the vegetable kingdom. Four arms in fancy scroll-work branch out from beneath a very handsome ball, from the centre of which the symmetrical stalk of a palm tree tapers aloft until the pendant leaves shoot out in a circle. The elegance, grace and beauty of the gently curving foliage, with the accessories beneath, constitute a most delightful and harmonious whole. We observed a small three-branch gasalier of a very chaste, and what appeared to us a very handsome design. We were informed that this article was got up for sale for the seaport towns. The terminus of each branch was ornamented with the prow of a Roman galley. The pendant chains were made in imitation of hempen cordage, and at

the lower end of each chain a very neat little anchor was suspended. To be in keeping with the rest of the design, the pendant stalk was made to represent the mast of a vessel, and the whole was coloured with dark Berlin bronze.

The glass department in this house furnishes no ordinary treat to such as are able to appreciate works of art; the shades and globes are cut and coloured in every variety of style. Although the glass is made in Birmingham, both the cutting and colouring is done on the premises. The painting on some of the lamp shades is both exceedingly fine and elaborate. The principal value of many of these articles is in their workmanship, many of which are really splendid specimens of high art, both for beauty of colour and elegance of form. Some of these goods possess all the richness and chaste beauty of Bohemian manufacture. In some articles the colour is subdued by a process we believe only known to a few in the trade a short time ago, in others, where fruits and flowers are represented, the hues seem to blend into each other as if they were fresh from nature's laboratory. It would scarcely be interesting to our readers to describe the various processes of this business. Much of what we have already said in reference to those trades of an artistic character, is equally applicable to this. The creative genius of the designer is here of the first importance. The shadowy forms that are called forth from the mysterious dwelling of fancy are marshalled in the mind of the artist where taste and judgment unites, arranges and forms them into living shapes where they remain the embodiments of noble conceptions. Whatever configuration the designer gives his ideas on paper, the modeller brings them into relief. These tangible thoughts are then sent to pass through their various degrees of creation until very likely some delicate female hand has made them fit to occupy places in the halls of the great. Modelling, moulding, lacquering, chasing, electro-plating, finishing, and burnishing, form the daily occupation of above four hundred people in this establishment. While we were in the finishing room of the works, we had the pleasure of seeing the parts of a gasolier of new design, certainly the most elaborate and ornate thing of the kind we ever witnessed. The chief features of this beautiful piece of workmanship may briefly be described as follows;—the stalks of three palm trees rise out of the ground at right angles from each other, and may be about eighteen inches apart. These gracefully incline to a common centre by which means they become united, the single shaft then towers aloft until the leaves branch out and form a delightful canopy over the space beneath. The rising ground or little hillock from whence the three stalks spring is covered with ferns and grass. Two deers and a stag stand on this platform, the deers are browsing quietly among the ferns, but something has arrested the attention of the stag, and he stands the personification of a vigilant sentinel. His whole form seems to be dilated, full of beauty and animation. The group and their accessories make a most delightful picture—poetically grand in the conception and artistically executed.

The railway lamp department in this work is a place of considerable

interest, from the immense quantity that are being manufactured. We believe these useful articles find their way to all parts of the world where railways have been inaugurated. Messrs. Arthur Linley & Co., the proprietors of the Atlas-works, do a large trade in the manufacture of railway signals. Their appliance in this department is a patent of their own, and is termed the self-acting railway signal. The manner of acting and giving notice by this contrivance is exceedingly simple, and at the same time highly efficient. In connection with one of these signal posts, a spring is placed under the rail, over which the train has to pass. The first wheel that passes over one of these springs causes it to communicate with a weight and pulley, this latter acts upon a lever, by which means the cautionary arm of the telegraph is made to fly out from the post at right angles, and at the same time rings a bell sufficiently loud to be heard at the distance of a quarter of a mile. From the efficiency and economy of these signals, it is more than likely that ere long they will be in general use along the whole of our lines of railway. At the time we were in the works, the firm was engaged finishing a large order for lamps for Indian railways. There can be no doubt that the success of this undertaking will cause other capitalists to engage in the business, by which means the trade of the town of Sheffield will be still further extended. Should this be the case, Sheffield and Birmingham will be placed in greater rivalry than they have ever been before, but as the world advances in civilisation, and men's wants are enlarged, the tinsel of Birmingham, and the pot-metal of Sheffield will always find markets.

ELECTRO-PLATING AND BRITANNIA METAL MANUFACTURING.

There is one important business in Sheffield that owes much of its present significance to the improved condition of the people, and the growing taste for goods of an artistic character. In the early part of the present century both the silver-plating and Britannia metal trades were comparatively in a rude state to what they are now. For several years past a great improvement has been effected in the Britannia metal business, both as regards the character of the material and the artistic forms of the goods. The desideratum in this trade has been the want of a pure metal combining hardness, colour, durability, and cheapness. Although these requisites have not been fully attained, a decided improvement has been made by new methods of alloy. The metal known by the name of German silver is comparatively a modern discovery. This composition was introduced into the trade to supersede Britannia metal in the better class of goods. A cheap alloy of this material has been much in use for several years in the manufacture of numerous articles for domestic use, but its liability to oxydise rendered it a dangerous material for culinary purposes. During the last twenty-five years this metal has been in a great measure superseded by one of a purer nature. From its similarity to silver, both in character and appearance, it is known in the trade by the name of Nickel, and may be said to be an improved edition of German silver, being a compound of nickel, zinc, and copper.

For nearly a hundred years Sheffield has been celebrated for her silver-plated goods. Under the old system of silver-plating, where the articles were of a plain surface, it is said that the method was superior to the electro-plating process. The reason assigned for this appears to be a very obvious one. The silver used in the old method was hardened by an alloy which made it more durable than virgin silver, which is not much harder than lead. In the old style of plating, the foundation of the goods was invariably of copper. In the plating process, certain quantities of this metal and silver, (the proportions being regulated by the character of the intended goods,) were rolled into sheets; these sheets were cut up and blocked into the forms required under the hands of the artist; it will readily be seen that the more prominent parts of the article would subject the silver to a greater amount of tension than the rest, and therefore, when finished, would have the thinnest covering. It is only reasonable to suppose that the more exposed parts of this description would show their brazen faces before the plain parts were half worn. Under the new system of electro-plating, the very reverse of the above takes place, inasmuch as the most exposed parts of the article in the bath receives the strongest coating. It is true the best quality of goods in the old style of plating had their prominent parts protected by mouldings and decorative appliances in embossed silver, the hollow parts being filled with soft solder.

In describing the silver-plating business it will be seen that in an artistic point of view the electro-plating process admits of every variety of form being coated without extra trouble. Whatever shape the foundation may be made to assume under the hand of the workman, the mysterious power of the galvanic battery will cause any amount of silver to be deposited over the surface of the articles submitted to its action however unequal that surface may be. One of the most important advantages of the new method of making plated goods consists in the purity of the metal used for the foundations. The deception brought to light by the plating giving way, is now entirely obviated, inasmuch as when the silver is worn off, there is scarcely a perceptible difference to be observed in the appearance of the article; and when the nickel is of first-rate quality, it requires a good judge to know whether it is plated or plain!

During the last twenty-five years, several houses have sprung into existence in Sheffield in this trade; and, in consequence of the moderate price of the goods, the business has been steadily increasing. There is one house in this line that is worthy of special notice, not only because it is the most extensive in the silver-plating trade in Sheffield, but that it embraces three distinct branches of manufacture, each of which are conducted upon a scale of almost unprecedented magnitude.

On the north side of Sheffield, in the valley of the Don, and on the banks of that stream, the passing stranger may observe a huge brick building, with a stalk of considerable altitude rising out of its centre. The Sheffield people know this place by the name of the "Cornish Works." This name may have been derived from the consumption

of tin used in the business carried on there, tin being a Cornish produce. As this establishment is one of considerable interest, both in a commercial and artistic point of view, we will endeavour to give our readers an idea of its various appliances in connection with its threefold manufacturing character. We enter the building on its south-east side, by Cornish-lane. This range contains a suite of counting-offices, private rooms for the members of the firm and some of the upper-servants, storehouse, and packing departments. In commencing a voyage of discovery through this establishment and its wonderful mazes, we cross the quadrangle and enter a new building that forms the north wing, pass up two flights of stone stairs, and land in the show-room. This is an elegant and costly fitted-up saloon, and large enough for a district ball-room. The articles exhibited in the numerous cases in this place are well calculated to arrest attention. In one case we see splendid candelabra, with their foliated branches and trunk supporters, in every style of art; fruit-baskets and flower-stands in fret and filligree-work. Then we observe whole cases filled with bottle and cruet-stands in every imaginable design, both modern and antique. Other cases are embellished with salvers dish-covers, tureens, trays, and urns, some plain and others elaborately chased, tea-sets in every variety of pattern, with goblets and fancy wine-cups. The most massive articles we observed in silver and plated goods were trays and dish-covers. Many of the large trays were plated in the old style, but on Nickel foundations, which made them as good as silver for all practical purposes. Many of the articles, we observed, were got-up in the first style of workmanship, both in design and finish.

From thirty to forty years ago, this class of goods were unattainable by any but the more opulent members of society. At the present time, a really magnificent tea-set can be purchased for less than the price formerly paid for the workmanship. Rivalship, like necessity, is a prolific source of invention. In this trade, competition has been the means of not only improving the character of the goods, but it has also greatly reduced their selling price. Some of the pictures in relief we observed in the show-room were perfect models in art. The numerous modifications of the vase, from the Egyptian and Etruscan upwards, produce an endless variety in the form of goods made for the dinner and breakfast-service. These articles are not only beautiful to the eye, but, as a matter of economy, they are much cheaper for those people who can afford to purchase them than others of an inferior quality, while the purity of the metal is no small recommendation in a sanitary point of view. The manufacture of silver-plated forks and spoons is a leading feature in the business of this house. The introduction of these articles to the dinner-table of late years has been a move in keeping with the taste of the age. The disagreeable and highly offensive taste produced by the chemical action of acid on steel has been done away with by the use of these articles; and, if at all taken care of, well made silver-plated forks or spoons will last more than an ordinary lifetime. We may mention that there are some houses in Sheffield confined to the manufacture of these sort of goods

alone, which is no bad proof of the great demand there must be for them in the market. It certainly would be a fortunate circumstance if knives for domestic purposes could be made of the same material.

The class of people who carry on the silver-plating business to any extent, require a large capital, inasmuch as a considerable amount of money must be continually sunk in designs, moulds, and dies. From the general competition there is now in every branch of business, the house that can produce the most elegant designs and newest patterns is sure to receive the greatest amount of public favour. The capital *shelved* in this establishment in dies and moulds must be very considerable.

On leaving the show-room, we passed through the designing and modelling departments, where a number of the highest class of workmen were employed. Having already described these branches of the business in connection with the grate and fender trade, what we then stated is quite applicable to this business. After having observed some rather delicate manipulation in the modelling-room, our good mentor intimated that we should next visit the spinning-room. This is a large oblong apartment, full of machinery in motion. Our idea of this place, with its revolving wheels, before we entered, had a good deal of the cotton-mill notion in it. Much of the machinery in this room puts one in mind of being in a potter's turning shop. Along the whole length of the side of the apartment that fronts to the yard, there are a large number of turning lathes. The foundations for all articles that are to be made of a globular or cylindrical form, are cut from metal in the sheet, according to the sizes required. Whether a piece of this metal be for a bowl, a jug, urn, or goblet, one of the men here with his wheel in a very short time will fashion it into whatever form is required. The wonderful facility with which the spinners can convert the pieces of flat metal into the most symmetrical and beautiful forms is not a little interesting to the uninitiated. For some time after the introduction of Nickel silver into this business, a very great and what appeared an insurmountable difficulty in working it at the wheel was felt, the metal being so hard and brittle that it was continually giving way under the pressure necessary to give it the required shape. This serious difficulty has been overcome by a different treatment in the compounding. When the articles are finished in the spinning-room, they are sent off to the fitting department where they are supplied with handles, spouts, and such ornamentation or mouldings of a decorative character, as may be required for their class. The soldering process is one of much nicety, and is done here by the aid of oxygen gas. When the different parts of an article are soldered together, the points of union are decidedly the strongest. Such articles as have raised surfaces, or are formed of numerous parts, such as squares, &c., require to undergo a very different process to those of a plain make. The divisions of a jug, or a tea-pot, are cut from the sheet, and embossed according to the pattern, and when a sufficient number of parts have been blocked into shape, the whole are artfully combined into the required design under the hand of the solderer. While the metal is undergoing the process of turning it is frequently found necessary to immerse it in a solution of sulphuric acid. Technically

speaking, this is termed pickling. Such articles as the workmen beat into form by the hammer require a special treatment. In this case the metal must be frequently annealed, in order to make it sufficiently pliable for working. The annealing is done in furnaces constructed for the purpose and kept heated at a certain temperature. Many of those articles that are made for the breakfast and dinner tables are ornamented with handsome pannels, splendid chased mouldings, or rims in fancy work. In the process of making these, the parts are either moulded or cut and embossed in separate pieces, and are united by soldering. Nearly the whole of the goods of an ornamental character are chased. This process is the finishing one, so far as embellishment is concerned. There are a great number of men employed in this department; and as they require to be persons of superior education, as well as artistic taste, their remuneration is upon a higher scale than any of the other workmen, if we except the designers and modellers. The aroma that salutes the sense of smell on entering the chasing department is not by any means of a pleasing nature. All articles that are to be chased require to be filled with liquid pitch, and such articles as are not hollow are fitted in this material on wood frames. This arrangement protects the articles under treatment from being bulged or otherwise injured in the hands of the men. While in one of the chasing-rooms we were much interested in witnessing the manner in which fruit, flowers, the outlines of animals, and architectural designs were made to spring into existence at the will of the workmen. Under the operations of one man, creeping tendrils were sending their delicate feelers round the corrugated trunk of a mountain-pine, while a beautiful rose-bud was being made to unfold its tender petals by another. Some, again, were shaping limbs with anatomical correctness or forming the lineaments of the human face divine, and one man was engaged over a beautiful group of men and animals on the centre of a large tray.

When the articles intended for electro-plating have been formed, they are filed and smoothed with fine sand and oil. Some are buffed on the wheel, and after having been sufficiently polished, they are sent to be robed in silver or gold, or perhaps in both!

The number of silver-plated spoons and forks turned out in this house is almost incredible. In the manufacture of these articles, all the near cuts that science or machinery can give are taken advantage of; and the consequence is, that they are made with amazing rapidity. In the first process, the sheet-metal is submitted to the tender embrace of a ponderous machine upon the principle of the Nasmyth steam-hammer. The metal is here cut into shape and size required. Another machine gives the embryo spoon its concave form, and the prongs of the fork are cut by another. These operations are performed with the quickness of thought. After having passed through these early stages of their existence, the infant spoons and forks are sent to another department, where they are treated with the respect due to their rank in the silver-plated family. They are filed, hammered, or *smithed*, smoothed and buffed, after which they are ready for the silver-bath.

The next branch of business in this work is that of the Britannia-metal. A large number of people, male and female, are employed in the various branches of this trade. The different processes through which these goods pass in making are much the same as those above described. We have already stated that considerable improvements have been introduced into this business, both in the character of the material and in the designs applied to the shape and ornamentation of the articles. The consequence is, that this class of goods have now a very large demand, both at home and abroad. When we state that the Messrs. James Dixon & Son manufacture upwards of 60,000 Britannia-metal tea-pots annually, it will convey some idea of their business in this department. Only think, ladies, of the mountains of bohea these little steam-engines are calculated to infuse, and the soothing influence its liquor must exercise over the nervous systems of those who imbibe it!! What tons of saccharine matter and volumes of innocent gossip will make up the condiments to this delightfully exhilarating beverage! And what thousands of delicate little fingers will be employed in manipulating morning meals, and quiet scandal seasoned post-meridian feasts! How much human sympathy will glow in harmony with the tinkling music of plated spoons, the sweet organs of woman's speech, and the dulcet sound of porcelain cups and saucers! Every pot of this great army will, in all likelihood, have a family history, and many of them will become connected with strange and romantic events. Some of them, after having held the first place at the family board for years, will ultimately be superseded by others more in keeping with the altered circumstances of their owners. Others, again, will hold the post of honour when their *silver* predecessors have passed into new hands after having been flatteringly described by a knight of the hammer!!

The next branch of business carried on in this establishment is rather of a special character. The two we have noticed above are necessarily associated in our minds with the ideas of domestic comfort and the elegant appliance that surround a comfortable position in society. From the days of Nimrod to our own royal Albert, a large number of the human family, when not engaged in killing each other, have delighted in murdering certain classes of the lower animals. In our own country a love of field sports has characterised all classes of men from the sovereign down to the pig-headed poacher. On leaving the cutting and embossing departments, we were landed in a suit of rooms full of men, women, and boys, busily engaged in manufacturing all descriptions of sporting apparatus. In one room a number of men were employed in soldering the embossed divisions of powder flasks together, in another men were seen turning lids for flasks and shot measures. Some again were making liquor flasks, both in Nickel silver and bronze. The most of these latter articles are encased in leather or fine wicker work. Large numbers of people were engaged in making pouches and shot-belts in various designs. We believe this firm is famed over the world for their appliances in this business. Whether the sportsman ranges the backwoods of America, or scents the fragrant heather on the braes aboon Benau, he is almost sure to

carry the private mark of this house with him on some of his murdering instruments.

After having feasted our eyes in this department, we were conducted to a part of the establishment where few strangers are allowed to visit. This is the place where modern Alchemy performs greater wonders than the ancient philosophers ever dreamed of. This is the electro-plating department. There can be no doubt that electricity is the most active agent of the Almighty's power, not only in sustaining life, but in regulating the forms and combinations of matter. It is now some years since this extraordinary subtle power was called in to the assistance of art manufacture, since which many of our productions have assumed new forms and characters. The revolution that has taken place in these matters can no where be seen to greater advantage than in the process of electro-plating, whether in gold, silver, or copper. The rooms set apart for this work are on the ground floor. The batteries are in the cellars underground, and their conducting wires lead to the silvering troughs, where they can be connected or disconnected as circumstances may demand. When the electricity is in a state of quiescence the liquid in the jars is perfectly still, but the moment the circle is connected, like the pool of Siloam, the waters become agitated. The most of people know how a galvanic battery is formed. We may mention, however, that the liquid in the jars made to act upon the battery, is a solution of sulphuric acid and water. When articles are sent to be plated, they are first of all passed through several vats containing strong solutions of potash; these are kept at a temperature of from 200 to 212 degrees. When the articles are perfectly cleaned, they are immersed in a preparatory silvering bath for a few minutes. This bath is acted upon by an extra strong battery. If the article submitted to this process fails in receiving the necessary coating, it is a proof there is something wrong, and the consequence is, it must be sent back to undergo a second cleansing. When the goods are deposited in the regular silvering troughs, they are allowed to remain until they receive whatever amount of that metal is requisite for the class to which they belong. (We may mention that this firm do not make plated goods of an inferior quality.) All articles are therefore plated upon a scale commensurate with their market value. It must be observed that while the articles are passing through the electro-plating department, none of them are ever touched by the hands of the workmen, and when put in the bath each separate article is suspended by a piece of copper wire. The silver used in plating is in large sheets fixed athwart the troughs in various compartments. When the connecting wires are applied the mysterious power of the electric principle begins to reduce the sheets of silver, and at the same instant the liberated particles of the metal fly off to the base material, and forms, as it were, a mor- ganic alliance. We believe one of the principal agents in this matrimonial ceremony is a strong solution of cyanide of potassium. The process of gilding with gold is somewhat different. A piece of sheet gold is suspended by a copper wire, the solution is made to fall upon it; this liquid carries off the metal in atoms, and drops on, or

into, the article beneath where the gold is deposited. In numerous cases the inside of the articles only require gilding; in order therefore that the gold should adhere to the parts intended to be covered, the rest of the surface is coated with a solution of gum. The person in charge of this department must have a thorough knowledge of the business, and be able to regulate the baths with greatest nicety. In consequence of the exceedingly ticklish and precarious nature of the electro-plating process, numbers of manufacturers who do a large trade find it cheaper to send their goods to the electro-platers who confine themselves solely to the business, than have it done on their own premises. If a quantity of goods should be submitted to the bath and fail in the plating process in receiving a uniform coating, the whole of the silver that adheres to them, the time and the labour employed, would all be lost. It will be obvious to the reader that much of the success of the plating operation will depend upon the articles being thoroughly freed from grease or other foreign matter in the cleansing process.

After the articles have been finished by the platers, they are transported to the burnishing and polishing rooms to receive the kindly attention and care of a number of ladies. The process of shampooing, or polishing by the hand, may be supposed a very simple one; so it is, but we may remark that there are only certain kinds of hands suitable for the work. Those ladies whose hands are indicative of hard hearts and dry skins will not do, neither will your Desdemona humid palms answer. It is a curious fact, that silver cannot be so effectively polished by any other method as by the palm of the human hand. The process of burnishing is a very nice and clean one. This is done by the gentle friction of a small tool made of a very fine sort of stone. In those articles where one part of the metal is left dull or frosted, and others burnished, the contrast of the clear and dull metal produces a very pleasing effect. This sort of work is very frequently seen in candelabra and epergnes, and is well calculated to relieve the monotony which otherwise would prevail.

In consequence of the very extensive nature of the business done by this firm, they are enabled to compound their own metals. Whether there is any direct saving in their doing so we cannot say; one thing, however, is certain, it enables them to regulate it to suit the different purposes of their business. These gentlemen consume four hundred ounces of silver in their electro-plating alone, weekly, upon an average the year round, which is a pretty good indication of the extensive character of their business. The number of people in their employ average above six hundred, and they consume four thousand feet of gas daily of their own making for lighting and manufacturing purposes. In our next article we will have occasion to notice the influence this firm exercises over the social condition of their workpeople, and the general prosperity of the town of Sheffield. In concluding this very imperfect sketch, we may remark that we never were in any public work where those employed in it were so apparently comfortable, clean and respectable in their persons.

CHAPTER IV.

THE SOCIAL CONDITION OF THE PEOPLE.

THERE can be no subject of greater importance to the community than that its individual members should fairly understand their relative positions to, and dependence upon each other. Labour not only creates capital, but it also causes a demand for fresh labour; and thus it is that one branch of industry, if properly directed, is sure to be productive of public good. It is not our intention to discuss the broad question of labour, this we leave to the matter-of-fact dealers in political economy. Our object, in the meantime, is to bring before the notice of our readers certain circumstances and peculiarities in the condition of the labouring community of Sheffield.

In the course of our experience we have observed, that where trade is liable to the disturbing causes arising from periodical fluctuations, both the moral and social condition of the people is lower than in such places where business is of a steady character, although the value of labour is much less. The reason of this state of things will appear plain when we remember that men's wants are generally regulated by the immediate means they have of supplying them, irrespective of the future. Some of your moral philosophers, who live in the full enjoyment of all the necessities, comforts, and even luxuries of life, will blame this class of people for what they consider a gross mismanagement of their affairs. It must be evident, however, that men who are subject to such a spasmodic state of existence, from the uncertainty of a regular disposal of their labour, that they are frequently engaged in making-up the lee-way they have lost. The consequence of this state of things is, that the lean *kine* of their idle time are ever eating-up the fat ones produced by their industry. Taking society as we find it, we should like to know what class of people act differently. Those people who are in comfortable circumstances, and never lack the common necessities of life, many of whom possess considerable incomes, in nine cases out of ten, fully live up to them. This is not only the fact, but many of them are continually steeped in pecuniary difficulties, for the simple reason, that they allow their wants to run in advance of their means. Pride of caste and assumption of gentility is not confined to any grade of men, be their position high or low, and personal indulgence is too common in all classes.

The tradesmen of Sheffield stand deservedly high as clever and ingenious craftsmen; but it would appear that the nature of their engagements exercises a very serious depressing influence over their morals. We are not aware of any town in the United Kingdom where there is a more frequent clashing of interests between the employed and their employers. When trade is brisk the Sheffield workmen are said to be the most independent set of people in existence, and when it is depressed no class of men can be more subservient. This state of things argues an unhealthy condition of society,

and is the means of producing frequent antagonistic collisions between the employers and their workmen. When trade is prosperous the men engaged in certain branches are able to make excellent wages; no doubt they require to work hard for their money, but the irregularity of their employment is calculated to superinduce habits of unsteadiness highly injurious to their moral and social wellbeing. We have always found that where large bodies of tradesmen have frequent cause to meet together for the purpose of stating their grievances or regulating their affairs, that it is often the means of producing uncharitable feelings against their employers. Men who are continually labouring under the influence of a single idea are seldom in a condition to argue justly or reflect carefully. A small amount of knowledge in the science of political economy would be the means of preventing much evil in conducting and regulating trades' unions. Labour, like water, will find its own level; and, where there is a demand in the market, the price will at all times greatly depend upon the supply. It is certainly an uncomfortable fact, that an artisan may know the value of his labour for the time being, and in a month hence it may be reduced fifty per cent., and that, too, irrespective of any change in the amount of money he may receive. But, in this case, his employers are subject to the same fluctuations in the value of the current coin of the country. The competition of labour, with all the sufferings, privations, and hardships arising out of it, is certainly not greater than the rivalry in the commercial market. Every man who pays the smallest attention to the condition of that numerous class in British society who are engaged in manufacturing and commercial pursuits must be aware that its members are continually changing positions in consequence of the fluctuations of trade.

In reflecting upon the character of the Sheffield workmen, we beg to observe that they are not the only persons implicated in our animadversions. Many of the employers are not without a considerable share of blame in the matter. It is true, that the manufacturers have no power in regulating the demand for their produce; but we are aware, if they felt inclined, they could exercise a healthy influence over the morals of their workmen by identifying themselves with their interest and studying their social improvement. The besetting sin of a portion of the working classes is their love of intoxicating drinks. This propensity begets idleness, by unhinging the mind from industrious pursuits. It displaces the guard of reason, and lets loose the animal propensities. It estranges its victims from their friends and homes, and breaks assunder all the ties of domestic life. Men who take the world as they find it, and look upon the order of things as they exist to be in keeping with the decrees of providence, will not likely take much trouble to disturb the present social arrangements. Men, however, who live by commercial pursuits and plodding with the difficulties of the world, should be imbued with ideas of a very different character. Social progress has been the means of altering the condition of a large number of people in this class, and there can be no question that the change has generally been for the better.

The mutual interest that necessarily exists between the employer

and the employed, should not be confined to the mere idea of profit. The two bodies ought to be united by sympathy and good feeling; but we would have it understood that the manifestation of this feeling should emanate from the party laying claim to moral and mental superiority. If this were the case, working men would command a consideration due to them as fellow beings, instead of being treated as mere animal machines. In Sheffield the majority of the manufacturers have two stereotyped complaints that pass muster under the most opposite circumstances. When dull trade casts its melancholy gloom over the town, the masters relieve their petted feelings by expressions of sadness, and when business can scarcely be made to keep pace with the demands of the merchants, they ease their troubled minds by dwelling upon the idleness and dissipation of their men. The Sheffield workmen understand the right of personal freedom too well to allow the masters to monopolise the sole privilege of having all the grumbling to themselves. We believe it to be a fact that there is no species of personal freedom an Englishman will sooner assert than this one.

If the employers will continue to estimate their workmen merely as instruments to their aggrandisement, without considering their moral and social improvement, they have little cause to complain of their short comings. The selfishness of the one party will continue as a set-off to the ignorance or folly of the other. The workman who operates upon the materials of nature requires to exercise his judgment in studying their properties in order to enable him to fashion them to his plans. The raw material of humanity is no exception to this recognised rule; and we are of the opinion, if a little more pains were taken with the working classes, much might be done to improve their condition as well as making them more pliable in the service of those who require their labour. It is true that the manufacturers cannot command a steady market for their goods to enable them to find their workmen regular employment in all seasons. But they could do what would be decidedly more praiseworthy, they can encourage habits of prudence and sobriety among their people. The independence assumed by the Sheffield mechanics is both pernicious to themselves, and highly injurious to their employers. The man who works hard and drinks hard, is sure to be a thoughtless, selfish fellow, and ten to one that he cares for the interest of any human being but his own. Manly independence is not founded on the principle of a man doing what he likes with his own, on the contrary, the true estimate of human dignity rests upon a much better basis. The really true independent workman is the man who knows his duty, and does it in proper time and place. The working man who absents himself from his employment whenever it may suit his own taste or feelings, irrespective of the interest and requirements of his employer, acts the tyrant as much, in his small way, as the master would do who should wantonly suspend the labour on his property that he might indulge in some personal gratification. There is another consideration arising out of this subject. The man who is regardless of his duty to his employers, is certain to be equally

regardless of the duties he owes to his friends or family ; and it follows as a natural consequence, that he is sure to be a worthless member of society. Men who only see the working of our social system through their own distorted visions, may argue that this state of things cannot be remedied. We are of a very different opinion, inasmuch as we believe the means of reformation, to a very great extent, are in the hands of the employers, and that they only require to use them efficiently to produce the required results. As a working man and an employer, our experience in these matters extends over thirty-six years. During that time, we never knew an instance where an employer honestly identified himself with the interest of his workmen that he failed in bettering their condition. If the manufacturers of this country would make up their minds to retain in their service none but sober, steady men, and prove by their conduct that they really felt an interest in their well-being, the idle and dissipated members would soon be brought to a sense of their duty. We believe that the working-men have more regard for the estimate in which they are held by each other than they have credit for. Under the present condition of things, the sin of intemperance is by far too common to be felt as a reproach ; the consequence of this is, that a large number of both men and women become degraded by the license of a vitiated public opinion, and they only lose caste when they are no longer fit for duty. If the employers would only make up their minds to engage none but sober workmen, necessity and public opinion would combine to reform the drunkards, and what is of still more importance, it would act as a preventative. Such a plan, if fairly carried out, would soon be found more conducive to the reformation of the people than either legislative enactments, or the labours of temperance societies, however stringent the one, or well directed the labours of the other.

The moral and social condition of large numbers of the females in Sheffield is upon a very low scale. The low beer-houses and singing saloons are said to contribute largely to the demoralization of the young women who are employed in the warehouses. We were informed by a gentleman who has paid some little attention to these things, that numerous beer-houses are regular places of assignation for young men and women. Females who are thus contaminated in early life make the most miserable wives imaginable. They are intemperate, dissolute, improvident, slatternly, and dirty in their habits. After the first blush of married life is over, the husbands fly off to the taproom, where they find those comforts their homes are wanting in. The wives are therefore left to the guidance of their own weak minds and uncontrolled passions. We can easily imagine the force such example will have upon their children. Such being the condition of no inconsiderable portion of the working-classes in Sheffield, there is no wonder that this town is enabled to swell the criminal calendar of the county, so largely disproportioned to the number of its inhabitants, at each county assize.

There are few places in Great Britain where the raw material of humanity is better than in Sheffield, and there is scarcely any other

where it is allowed to exist in such an uncultivated state. It may be mentioned as a fact worthy of notice, that the worst class of manufacturers we know of are some of those who have immediately risen out of the labour ranks. Although these men are generally of provident and industrious habits, with a goodly share of worldly wisdom, they are sadly wanting both in the policy and those kindly feelings that regulate the conduct of the higher class of employers in their intercourse with their work-people. It may be supposed that the above remarks are too harsh and sweeping in their character. It would have been a much pleasanter task to us if we could have reversed the picture. It is a matter of no little satisfaction to us, that we are able to say that Sheffield can boast of a large number of decidedly clever mechanics, many of whom are men of strong masculine intellects, and holding a position in society both honourable to themselves and creditable to their employers. We remember to have had a conversation with a master cutler on the occasion of his having just arrived from his country-house, which was at a considerable distance from the town. Speaking of his men, he remarked, that, while he walked to his business, one of his men rode on his own machine to his work every morning, and returned to his residence in the evening in the same manner. We will be bound that that man had a home in the full acceptation of the term. His horse and machine furnished excellent proof that there was not much of his time spent in tap-rooms, and we have no doubt but that the moral and intellectual culture of his children were well attended to.

We have no desire to draw invidious distinctions in the observations and statements we are about to make, but as the circumstances came under our observation, it is our duty to make them public. The conduct of Messrs. James Dixon & Sons to their work-people is proof that they thoroughly understand the responsibility and the duties of their position. We have already stated that these gentlemen employ upwards of 600 people. The following is the manner in which they treat their servants. In the first place, every married man is provided with a comfortable cottage, at a moderate rent, in an agreeable suburb of the town. Each of these cottages is embellished with a flower-plot in the front and a garden in the rear, sufficiently large to produce vegetables for a good-sized family. In order to cultivate a taste among the men for botanical and horticultural pursuits, the Messrs. Dixon & Sons give a certain number of prizes to their tenants twice a year to be competed for. These prizes are divided among the successful competitors for having produced the best flowers and kitchen-garden vegetables. In order that their workmen may have time and opportunity to cultivate their little gardens and otherwise enjoy themselves, every man, woman, and child in the employment of this firm has a half-holiday every Wednesday throughout the year. If this half-holiday were looked upon as a pecuniary sacrifice, it would appear no trivial matter, it would amount to the loss of a day's labour of 15,600 people; and, if we take their wages at 2s. a head, we have the nice little sum of 7804!! The interest these gentlemen take in their work-people does not end here, they also

provide, to a certain extent, for the education of their children; and such young men as show any aptitude or taste for drawing are sent to the School of Design, after which they are employed in the higher branches of the business in the works.

The idea of elevating the tastes and humanizing the minds of the people by the means of cultivating flowers is certainly a happy one, and is well calculated to produce a spirit of generous emulation. A familiarity with the beautiful must have a soothing influence over the mind, as well as conducing, in this instance, to habits of industry and sobriety. Such conduct as this needs no comment of ours to recommend it, and all we would add is, that it would be well for the community at large if other large employers would do in like manner.

We have said that Mr. John Brown employs between four and five hundred men. There is one little circumstance connected with this establishment we deem worthy of notice. About two years ago, between eighty and ninety men in this work purchased as many of M'Phun's Family Bibles, for which they paid one guinea a piece. We have no intention to imply that these men were better Christians than their fellow-workmen in other shops, who manage to do without Bibles. But the circumstance furnishes no bad proof of the prudent habits of so many working-men in one shop, being able to spare so much money for an article they could have done without. There is still another example of prudence to be noticed in reference to these people. For some years the whole of the men in the Atlas works have been enrolled as a friendly society, by which means pecuniary assistance is provided both for themselves and families in case of accident, sickness, or death. Mr. Brown acts as president to the society, encourages his men in their provident habits, and when occasion requires it, assists them with his counsel and advice. While in conversation with Mr. F. Mappin, of the firm of Mappin Brothers, we were told that they never had any trouble with their work-people, and that turn-outs never affected their business. The number of people employed in this establishment is nearly 500.

What we have noticed above fully proves that where masters do their duty to their servants by taking an interest in their well-being, and treating them with the respect due to them as reasonable beings, they have no cause to be afraid of trades unions.

We have no doubt but many others of the Sheffield manufacturers take a similar interest in the well-being of their work-people, by treating them with equal kindness. From the examples we have laid before our readers, it will be obvious that if the working-men generally were led by their employers in a spirit of kindness, that we should soon have good feeling and harmony between masters and men, instead of antagonism, ill-will, and bitter discord.

Of late years there have been two parties in this country who have each, in their own way, endeavoured to elevate the condition of the working classes. The one has tried to convert them into philosophers, and the other to make them church-going Christians. Both these parties have made a serious mistake. The only philosophy the people wish to learn, is to live and enjoy life amid the scenes and associations

of their own class; and we consider it a fortunate circumstance that the great body of the people have no aspirations above their destiny to toil. To give the working classes an education above their condition in life, would be just as great a mockery as that of conferring a title upon a man who had not the means of supporting himself in keeping with such a social distinction.

The religious bodies who have been most forward in pressing their services upon the working-classes have made even a greater mistake than the philosophers. For some time past these gentlemen have been constant in their endeavours to rob the people of their amusements, without affording them the choice of others of a more rational character. In our opinion, the greatest mistake they have made has been in their endeavour to force the observance of the Jewish Sabbath with all its gloomy and spirit-depressing tendencies on the people. The best friends of the working classes are those who, like Messrs. Dixon & Sons, endeavour to teach them *sobriety and self-respect*. And if they are to be taught religion, the surest way to do so will be by the force of good example and kindly treatment.

CHAPTER V.

GLASGOW.

THE City of Glasgow possesses many characteristics which are peculiar to herself, both in her social and physical aspect. Her leading streets and thoroughfares are unrivalled by those of any town in the United Kingdom, both as regards the general uniformity of the houses, the splendour and elegance of the shops and other places of business, and, above all, as to the regular manner in which her principal streets intersect each other at right angles, by which means the transit from one part of the city to the other is facilitated. Many of her public buildings stand out in bold relief, and embellish the town by their varied beauty and different styles of architecture.

In travelling through Glasgow, the eye of the stranger rests upon buildings of excellent freestone, instead of the dull, monotonous, and everlasting bricks which form nearly the whole of the houses and public buildings in most of the English towns.

The Broomielaw and Stockwell bridges are both built with Aberdeen granite, and are among the noblest specimens of the elliptic style of architecture of the age.

The river Clyde, from being a narrow winding stream unfit for the navigation of any craft above the size of a cockboat, has been converted into a noble river, and now bears on its bosom thousands of the mighty leviathans of the deep, whose sails are filled with the winds of every clime under heaven.

During the last fifty years there have been serious transformations in the character and appearance of several of the leading streets, as

well as many of the principal places of business in Glasgow. Year after year, some crooked memorial 'o' auld lang syne' is being consigned to the tomb of forgetfulness. The old streets which were formerly characterised by the questionable beauty of sharp curved lines, and the angular protuberances of gouty old houses, have been turned from their crooked ways, and are now dressed in the fashionable costume of modern gentility.

We may safely assert that there is no town in the United Kingdom where commercial progress has produced such rapid and extraordinary changes. Up to 1820, the whole of the retail, and nearly all the wholesale merchants, were located in the region immediately round the Cross, termed from that fact the "Golden Acre." This old trading district embraced small portions of the High-street, Gallowgate, Saltmarket, and the Trongate. From the above date the town began to extend itself with astonishing rapidity to the west. This migration having set in and continued for some years, much apprehension existed among the proprietors in this part of the town lest it should be left a desolation, and their property totally ruined. During the last seven years a pleasing change has passed over this old seat of commercial industry. Its old character has been resuscitated, numerous splendid buildings have been erected, and trade flourishes with renewed vigour.

Perhaps there is no place either in Glasgow or elsewhere that has undergone such a complete change in its features as the Broomielaw has done during the last twenty years. If a stranger should place himself on the centre of the bridge that overlooks the harbour, and could conjure up to his imagination the scenes we have witnessed on the space over which his eye should range, the pictures of the past would contrast strangely with the present. In looking down the river, the harbour walls extend on each side as far as the eye can see. The extreme point of vision is now bounded by the bend on the river where the fisherman's hut was wont to stand. The whole length of this distance (about one mile) is now lined on the land side with spacious open streets. Between the walls and the streets there are several miles of excellent sheds, for the temporary stowage of goods that are about to be shipped, or have been recently landed from the vessels. The whole of the distance above-named along the river side is thickly studded with gas lamps, which, when lit up at night, present quite a fairy scene; and when the evenings are serene, the sparkling lights are reflected from the smooth surface of the water like so many twinkling stars in the firmament.

The open part of the river, too, presents an ever varying scene, from the continual passing and repassing of numerous splendid steamers, laden with their living freights of the inhabitants who are continually passing to and from the numerous watering places on the banks of the lovely and picturesque estuary of the Clyde. Wherever the eye rests there is life, bustle, and commercial activity.

The spots now occupied by these emblems of the city's greatness would scarcely be recognised by "the oldest inhabitant," who had, a few short years ago, migrated to some strange land, for in his memory he fails to believe that commerce, the arts and science, can progress

where the hand of the despoiler has been seen on every shrub and tree that were in early times his boyish pride, and 'neath which, perhaps, he spent the happiest moments of his existence. Still such is the case. The green lawns have been swept away, and immense iron foundries, and extensive shipbuilding yards now occupy their place.

Leaving the busy portion of the harbour, the traveller emerges on Windmillcroft, for many years a favourite bleaching green of the residents on the south side of the river; but which is now being dug and trenched, with the view of being converted into a wet dock for the better accommodation of the rapidly increasing trade of the port. The work of excavation, however, goes slowly on, as the magnates who compose the corporate body, y'clep'd the River Trust, are at sixes and sevens whether the work should be proceeded with at present or delayed till some future time, when the funds of the Trust will be in a more flourishing condition. How the matter will be settled is not for us to predict, but it is undeniable that, if the shipping trade of Glasgow progresses annually in the same ratio that it has done for the last ten years, increased quay room must be provided; and as there is every reason to suppose that the trade will go on increasing, one would think the River Trustees cannot do better than at once set about providing the necessary convenience for the augmented traffic so confidently expected. But we must leave Windmillcroft; before us may be seen in the distance the large shipbuilding yards of the Messrs. Thomson, Messrs. Napier, Messrs. Smith & Rodger, and Messrs. Tod & Macgregor—all standing boldly out in relief—the various yards crowded with iron fabrics, destined to take no mean part in the commercial history of the empire. Some of these have only had their ribs set up, while others are covered with powerful men, clustering upon them like bees, whose duty it is to sheath them with their iron coverings. These shipbuilding yards are all very extensive; and from some of them the finest ships that ever breasted an angry wave have found their way to the ocean. Here, also, have steam frigates, and the finest of the floating batteries, been launched, and here, also, sprang to being the pioneer of the now important line of screw packets between Glasgow and New York; but of whose fate, alas! no one has yet been found to tell the tale. In connection with the shipbuilding yard of Messrs. Tod & Macgregor, stupendous operations are being carried on for the construction of a large dock. This dock when completed will, at half tide and under, admit through the gates vessels of ordinary tonnage, while at full tide ships of the largest size and greatest dead weight can be taken in. The gates once shut, by a powerful pumping apparatus the immense body of water will be ejected into the Clyde in an inconceivably short space of time, and thus the vessels, previously cradled, can be thoroughly examined in every part. The benefits, which Messrs. Tod & Macgregor will confer upon the shipping interest of the Clyde by this improvement—which can only be completed at very great expense, are incalculable, as large ships will not then require to go round to Liverpool and other ports, when it is necessary that their hulls should be examined.*

* This dock was opened in February, 1858.

In many places the land-marks of the old town, with their historical characteristics and many pleasing associations have been swept away, and the green fields that at one time formed its rural border, have been converted into bustling streets, filled with splendid warehouses, and magnificent shops. If some of the old Tobacco or Jamaica Lords, who formed the leading mercantile aristocracy of last century could be allowed to take a topographical survey of modern Glasgow, we have no doubt their credulity would be put to a severe test. The fact is, Glasgow of 1857 is no more like the town of that name a hundred years ago, than Dunleary was then like Dublin. However great the transformation that has been effected in the physical aspect of Glasgow, we will be able to prove that the change in the social condition of her inhabitants has been equally great.

Even so recently as forty years ago, the commercial notions of the Scotch people were in a very rude state. The highly dishonest system acted upon among the retail dealers had become a reproach to the more respectable class of commercial men. In every business where the nature of the goods admitted of a latitude in their value, it was a common thing to put 30 per cent. to their selling price. Generally speaking, this method was thoroughly understood by the customers, who were nothing loth to under-bid them in the opposite direction. The waste of time, and the disreputable nature of doing business in such an unprincipled manner, contrasts strangely with the method pursued by the retail dealers at the present time.

In the course of these pages we intend to show how the Queen of the West has risen to her present proud pre-eminence. As families rise to importance in the community by the talent or industry of their heads, so do towns and cities rise to greatness by the industry of their labouring classes, and the enterprise of their merchants and manufacturers. In the early part of the year 1817, two young men began business as drapers, in the Saltmarket. As we have before observed, that locality was then the emporium of the retail trade. It is said, we are not aware with how much truth, that James & William Campbell began the world in the premises where the bailie of the hot poker notoriety resided. Be that as it may, these gentlemen have lived to see the old piazzas brushed away, and the whole scene of their early commercial existence changed by the magic hand of progress. Up to the year 1825, Glasgow had made a rapid increase in the accumulation of material wealth. Her boundaryline had then extended far beyond her old land marks. Both Anderston and Bridgeton were about being allied to their big sister, and thereby losing their identity as independent villages. Long since that time they have been swallowed up, and have become integral parts of the city, and enjoy the protection of her police, and the honour of paying their rates into one common fund.

The business of Messrs. James & William Campbell, in the Saltmarket, had become too large for their premises. At that time Candleriggs-street was in an unfinished state, and there were few merchants of any note in that now bustling thoroughfare. We are not certain as to the precise time the Messrs. Campbell removed to their

new premises in Candleriggs, but we are aware of this fact, that their going there gave the place a new character, and was the means of enhancing the value of property in that locality.

These gentlemen had long been disgusted with the system of deception that was being practised by the retail dealers in their own business, and the consequence was that they made up their minds to introduce a uniform rate of charges for their goods without abatement. This inroad upon a system that had been hallowed by time, and endeared to the people by the latitude it gave to low cunning and dishonesty, was looked down upon with anything but favour by the great body of the people. But there were many of the 'better informed members of society who were heartily ashamed of the higgling system, and therefore looked upon the conduct of the Messrs. Campbell as a move in the right direction. It was certainly a matter of no small importance that a child could be entrusted to make a purchase without the fear of being circumvented. In a few years the Messrs. Campbell found their reward in the patronage and support of the public, and they had also the pleasure of seeing their example followed by all the respectable retail dealers in Glasgow.

The warehouse of these gentlemen in the Candleriggs may be said to be the first of those monster retail houses that are now to be found in nearly all the towns of any note in the kingdom. The business of this firm has been steadily advancing over a period of forty years, until it has become the largest establishment in the wholesale and retail drapery business in Scotland; indeed, we only know of two houses in England, in the trade same, that do a greater business. About three years ago, the commercial transactions of this house exceeded one million annually. For several years past the Messrs. Campbell have carried on their business in their large warehouses in Candleriggs and Buchanan-street, both of which are beautifully fitted up, and their arrangements carried out in the most systematic manner.

Little more than two years ago, these gentlemen erected a very large and magnificent warehouse for their wholesale business in Ingram-street. This building is a resuscitation of the old Scotch style of architecture. There is a peculiar quaintness about it that is calculated to send the mind back into the middle ages; and, although its princely magnificence, solidity, and immense size, strikes the beholder, there is a monastic appearance in its Mediæval outlines that ill accords with our notions of a modern commercial establishment. We believe that Mr. Billings (who was the architect) has done much the same for the resuscitation of this style in Scotland, the late Mr. Pugin did for the Gothic in England. However tastes may differ as to the exterior of this warehouse, there is one thing certain, that its internal arrangements have been all carried out upon the first principles of modern improvement. In the business part of the house there are four large floors. The goods are arranged according to their kinds, in departments, about eighteen in number, each of which is under separate management. Each of the floors has a large square opening in the centre. This arrangement has a two-fold advantage—it allows of immediate communication between the different departments, and in

the daytime admits of a constant stream of light from the glass roof down to the basement. The four floors receive light from nearly three hundred windows, beside the arcade roof. An archway on the eastern end of the building leads to the packing department. This place is sufficiently large for a good sized warehouse. It is lighted from an obscured glass roof, and floored with asphalt, and is complete with all the modern appliances for packing bale goods. The west wing of the building is occupied by a magnificent suit of counting-offices, private rooms for the members of the firm and upper servants, with numerous other appliances for the use of the establishment. The whole of the compartments connected with this part of the house are fire-proof. The entire building stands upon four thousand square yards, and when finished, will be considerably larger.

A few years ago, the young men employed in the warehouses of this firm were in the habit of going to business before breakfast, and they went to that meal at nine o'clock a.m., and to dinner at two p.m., and remained in the warehouses until a late hour of the evening. That system was found to be highly injurious to a large number of the young men. When in the act of going to and from their meals, they were constantly under a liability of being entrapped by their unthinking friends who wiled them into taverns. The social character of Scotchmen has a very dangerous charm about it, and the more friendly the relations of the party thus occasionally meeting, the more dangerous its consequences. Whether men meet by accident or engagement, on business or pleasure, the occasion must be hallowed over the gill stoup. The consequence of this state of things was, that many of the young men were initiated into habits of intemperance, lost their situations, and what was worse, many of them lost caste, and were ruined. For some time past this system has been entirely changed. In the wholesale warehouses the men now assemble at nine a.m., and instead of going to dinner as formerly they take a little refreshment with them, or have it sent, and are finally relieved from duty about six o'clock p.m., and on Saturdays at two p.m. The same arrangement prevails in most of the other wholesale warehouses in Glasgow.

This judicious arrangement enables the married men to spend a great deal more of their time with their wives and families than what they had the means of doing under the old system. To the young unmarried men in the establishment, the change was a matter of signal importance, inasmuch as it gives them time for self-culture, and affords them opportunities for rational amusement they had not before. We have reason to know that this system works well for all the parties interested, and there can be no doubt it will be the means of saving many young men from being cast away on the rocks of intemperance.

At whatever time these gentlemen may be called from the scene of their well-directed labour, their name will have been interwoven with the history of Glasgow during a period of nearly half a century in the most prosperous time of her existence. Some people imagine that men who have amassed large capital by trade, continue to cling to business through sordid motives. We grant this may be the case

in particular instances. It is only a short time since we had a conversation with a gentleman in Manchester, who has accumulated a princely fortune by his industry and well-timed enterprise. We observed how much more comfortable he would be were he to retire from the turmoils of business, and enjoy the evening of life in quiet repose on one of his own estates in the country. His answer was, that much of what he possessed had been obtained by the industry of his workpeople, and if he were to withdraw his capital, it would be the means of shutting up so much labour in the market. But, he continued, if I were to study my own ease of mind and bodily comfort, without taking into consideration what I conceive to be the legitimate use of my capital, I certainly should have retired long ago. We have no doubt that the Brothers Campbell have been influenced by similar motives in continuing to prosecute their business long after they were independent of it. Although there are now numerous monster houses in Glasgow, all of which are conducted upon much the same principles as their own, their withdrawal from the commercial market in Scotland would be felt as a serious loss. The number of men employed by the firm directly upon their own premises is about three hundred; but it would be a difficult matter to calculate the number their business employs indirectly. Capital has its duties, and when it is in the hands of good men, it is never idle. We know that these gentlemen have not been wanting in their stewardship, and their liberality has not been characterised by anything in the shape of narrow-mindedness. Their fortune has been built upon the industry of the people; and when there is a claim made upon their benevolence, they do not stop to enquire the political or religious creed of the claimants.

Distance would seem to lend a charm to the actions of men that we are unable to appreciate when near to us. There is a poetry in this sort of thing that makes us revere the past, and it is the means of making every succeeding generation of men do justice to the one that preceded it. Every age is, to some extent, a debtor to the one that went before it; but although there might be much to admire in the character and social habits of our forefathers, we are of the opinion that it would be a melancholy change were we obliged to conform to their manners and habits now. Less than fifty years ago, the social existence of a large number of the Scotch people was amenable to a supernatural power they were in continual awe of. Their belief in the existence of good and evil genii, who regulated men's affairs, and took cognizance of their actions, was as firmly fixed as their belief in the Deity. Were we disposed, we could furnish plenty of proof to show that the every-day conduct of the people was in a great measure regulated by their superstitious hopes and fears. In the meantime, our object is to introduce another successful commercial firm in Glasgow, who have been the means of effecting no small change in the social character of the people in the West of Scotland.

A few years ago, the manner of performing the rites of the dead in Scotland was in some measure peculiar to the country. Upon such occasions there was much ceremony and no little expense. The first

duty after death was that of laying out the corpse. In all cases this office was assigned to females. If the dead person was a male, the arms were laid down alongside of the body, and if a female, the hands were placed over each other on the breast. In most cases, much pains were taken with the shroud, in order to give the corpse a decent and respectable appearance. If the dead person retained anything like a natural expression of countenance, it was looked upon as a favourable omen, and was said to be like "its sel." After the remains were fairly laid out a saucer of salt was placed upon the breast. If there should be a cat in the house, she was either put out, or a tub *whomelled* over her; where there was a mirror, it was covered with drapery; and where there was a clock its going was stopped and its dial shrouded in white. After these preliminaries were settled, the corpse was waked three successive nights by the friends and relations; during the performance of this duty the life and actions of the departed were passed in review. The circumstances of the bereaved and their prospects were canvassed, and the gossip of the neighbourhood enabled the party to wile away their time in the chamber of the dead.

From twenty-five to thirty years ago, a death in a family in the West of Scotland, was a very serious matter in a pecuniary point of view. In these things, there was a fashion sustained by a false pride, that in many instances was highly injurious to the living, in consequence of the useless expense attending them. At that time, there were none of those men who since then have turned the burial of the dead to such profitable account. In those days, when a death occurred in a family, the coffin had to be ordered at the joiners or carpenters. The mort cloth, hearse, or spokes at another place. Circulars or invitation cards had either to be written or printed. The baker and the wine and spirit merchant supplied the refreshments; and where the parties had no ground of their own, they required to be at considerable trouble and loss of time in procuring a suitable resting-place for their deceased friends or relations. Even then the business was not finished, the interest of the living in the dead followed it to the grave, and at that time watched over it lest some amateur in the science of anatomy should seize it for the dissecting table.

In the year 1829, two gentlemen in Glasgow united their small capitals and a goodly stock of energy, and commenced business as operative upholsterers. After they had been in business about two years, they added the funeral undertaking to their already thriving trade. The latter branch, as a distinct business, was at that time comparatively unknown in Scotland. It will be seen, however, as we proceed, that this business has now become a part of the necessary social appliances of the people. The year 1832 was heralded into Glasgow by the most dreadful malady witnessed in this country for many centuries. For a short time, the messenger on the pale horse took up his abode in a small village a few miles from Glasgow, of the name of Kirkintilloch. The sound of wailing came along the banks of the canal from this place with a fearful cadence, and the alarm of impending danger

seized upon the minds of old and young. Ultimately the man on the pale horse dashed into the terror-stricken town. Many of the inhabitants were paralyzed with consternation; some fled to the country, others shut themselves up in their dwellings to await the time the awful scourge should pass over the doomed city. Men were seen in the morning full of life and health, with plans for the future extending over many years of anticipated happiness, and before the sun went down they were no more. Friends and relations parted at the breakfast and dinner-tables, and went about their business, but never breakfasted or dined again. The bride in youth and beauty was snatched from the bridegroom, and the festal hour resulted in death. The shopkeeper laid down his measure and left his customers standing at his counter and was seen no more in life. The toper quaffed his mountain-dew, and sobered in spasmodic convulsions never to quaff again. The mother was doubled up in the arms of death, with her infant at her breast. The stranger was arrested on his journey; and, in some cases, before the vital spark was fled, his remains were tumbled into a pit with hundreds of others!

For several weeks the road to the High Church was continually filled with sombre-looking vehicles and groups of men carrying their loads in silence to that depository of the dead. The passers-by were wont to utter an exclamation of sympathy or terror and pass on. For a while the sun of life was darkened by the pall of death. At last the man on the pale horse silently took his departure to act the same scenes elsewhere. The victory was won, and the living buried their dead, and men went about their business in their usual manner.

There is an old Scotch adage which says, that "it's an ill wind that blows nae body gude." The cholera in Glasgow, in 1832, was a flood-tide in the fortune of the Messrs. Wylie and Lochhead. At the commencement of the pestilence, when men stood appalled, and lacked the courage and the ability, even when entreated, to render the last offices of humanity to the dead, and there was imminent danger that the fearful malady would be extended by their undue delay, these men nobly came to the rescue, and personally, at much risk, and an extraordinary amount of exertion, they obeyed the call of all who required their offices. Their exertions at this time were seen and appreciated by the people, and since then their commercial career has been steadily onward. Their funeral undertaking business has not only been fortunate for themselves, but it has been a decided advantage to the public. Their new system has entirely exploded the old cumbrous and expensive method of burying the dead. These gentlemen furnish all that is required for funerals, not excepting the ground; and the consequence is, that an interment can now be effected for one-half less than in the olden time, besides relieving the parties of a great deal of both trouble and anxiety. A few years ago these gentlemen introduced a new mourning coach. These very useful vehicles are constructed with air-tight bottoms beneath the carriage department, in which the coffin is deposited, while the mourners occupy the body of the machine. This carriage affords both a cheap and comfortable method of doing the last honours to the dead. The various appliances for such people as

may require to observe the conventional rules of society in the upper ranks are both numerous and well ordered, so that the living can perform the last duties to the dead according to their circumstances or tastes.

Some few years ago this firm had a very splendid and commodious warehouse erected for their business in Argyle-street. At that time it was thought that those premises would have been sufficient for their increasing trade; but it may be observed that when men once obtain a command of the ball of fortune, there is no calculating where it will stop. The undertaking department had kept pace with the quickly increasing population of the town, and although their success has invited many men into the trade, they go on expanding. Those men who don't trouble their minds with vital statistics would learn a lesson by taking a "sentimental journey" through the coffin department of this house. Like suits of clothes in an outfitter's establishment, all ages, sizes, and dimensions of worn-out humanity may be fitted to a T. People who are hypochondriac, or such as are afraid of these symbols, had better remain away. In our mind the only thing of a disagreeable nature is the aroma of the wood and the sulphate of iron diluted with water which is used for the plebeian cases.

The Messrs. Wylie & Lochhead were the first to introduce omnibuses, both for the town and suburban districts in Glasgow, and they have also the credit of inventing the improved roof to these vehicles, by which a threefold advantage has been attained—namely, standing-room inside, free ventilation, and a commodious double-seat on the top.

In observing the phases of social life, we cannot but feel struck with the onward progress of the fortunate few and the stand-still fate of the many. There can be no doubt in the fact that this matter is wisely ordained: many may live about the base of the hill, while only a few can find space on the summit. Like the house we have noticed in the preceding chapter, this firm now exercise no small influence on the commercial and social character of the town they have helped to make.

In the year 1855, the large and commodious premises in Argyle-street were abandoned by Messrs. Wylie & Lochhead, and they took possession of one of the most superb buildings in the kingdom erected by themselves in Buchanan-street. This warehouse presents quite a new feature in the commercial character of Glasgow, in consequence of its various appliances. The building itself is an object of no small interest. In length, it is 206 feet by 66, and 70 feet in height. The compartments are beautifully and tastefully arranged. The interior of the great hall consists of the ground-floor, with an elegant shop front, and three galleries rising above each other, extending round the building in a semi-circular form. Each of these galleries is panelled in the front, and very chastely decorated, presenting to the eye a series of most beautiful ornamentation. The building extends from the fashionable thoroughfare of Buchanan-street to Mitchell-street on the west. Also an entrance by Union-street, where their undertaking is carried on. The west-end of the building is occupied as counting-offices and private rooms for the members of the firm.

The whole of the large hall is lighted by a circular roof running the whole length of the building, covered by plate-glass, obscured in such a manner as to subdue the rays of light, by which means it softens and harmonises the colours of both the goods and the ornamental decorations of the interior. Strict attention has been paid to the economy of management in all the departments of the establishment. The packing department is assisted by an eight-horse steam-engine, and both goods and people are sent up to the higher parts of the building by a hoisting machine. This apparatus affords no small treat to many who visit the establishment (and these are not few), who can be elevated in the world with a pleasing ascending motion, and when they gain the summit they can look down upon a picture of industrial life few other places in the world can furnish the like of.

There have been many changes in Glasgow since the formation of Buchanan-street. A small rivulet was ere while wont to wind its way through overhanging grassy banks and flowery meads in its purling course to the Clyde, whose waters, like its own, were then unpolluted with the refuse of manufacturing industry. St. Enoch's Burn has long since been numbered among the rest of the subterranean mysteries of the Queen of the West. One of the tributaries of this *burnie* was an offering from St. Thenaw's Well. This fountain was long held in veneration by the inhabitants of auld *Sanct Mungo*. Like the Lady Well at the foot of the Drygate, its waters were supposed to possess healing virtues. Before the burn was closed in by the vandalism of progress, its course marked the western boundary of the town, and at the present time it traverses in its course a considerable part of the centre of modern Glasgow. Beneath its gurgling waters the foundations of many spacious buildings rest in repose, while above its narrow hidden channel, in the huge premises of the Messrs. Wylie & Lochhead, hundreds of packing cases are stored in readiness for the bustling citizens when their race is run. If any of our readers should have the pleasure of travelling up the vertical railway to the higher regions of this modern bazaar, (and we may mention that the machine is at the service of all who visit the house either on business or pleasure) that beneath their feet the waters of the holy well of St. Thenaw mingles with the pollutions of a great portion of the city.

The leading business of this firm is now that of house-furnishing. The man who wishes to commence the world as a housekeeper, either in the character of a nondescript bachelor, with second-hand buttons on his shirt, and his linen aired by alien hands, or he who has been spliced to a domesticated and loving rib, if he has a soul above plain hard wood chairs and a stump bedstead, can be furnished with everything requisite for a well ordered house, from the attics to the kitchen. One little circumstance may be mentioned in connection with the business of this house that will afford no bad proof of the altered tastes and condition of a large number of the Glasgow people. During our visit in the establishment in 1857, an order was given to the traveller of a London house for 2000*l.* worth of mirrors!! We think it is very questionable if there was as much stock in this branch of

the upholstery business in all Scotland sixty years ago. In the funeral undertaking department which is entirely separated from the warehouse business, and is conducted in another large building lately erected by the firm, fronting Union-street, during the years 1855 and 1856, these gentlemen consigned the mortal remains of eight thousand one hundred and forty-eight human beings to their mother earth. If they should proceed at this rate for the ensuing twenty years, they will have covered up one fourth of the population of the city. Coffins are very seldom associated with ideas of a pleasing character, yet it is a comfortable reflection to some people in their hours of sadness to know that these last packing-cases for worn-out humanity can be had ready made when required. We well remember the time when the Glasgow people could not be suited with these things so readily, or at such moderate charges, not to speak of the modern gentility of the present system over the old method.

The posting establishment of this house would have been a matter of no small curiosity to the wonder-loving public a few years ago. In our chapter upon the street traffic of Glasgow we shall have occasion to notice their modern appliances for the town transit of the public.

The business departments of this house are well worth a passing notice. The groundfloor, which is in the shape of a magnificent saloon, is set apart for the display of the lighter class of textile fabrics connected with house furnishing, such as curtains and hangings of all descriptions. These embrace brocatelles, satin-damasks, tabarettes, lampas, brocades, guipurettes, tapisettes, muslin, net and lace. Table covers in all sorts of material and designs, and embroidered articles of all descriptions both for domestic, church, and heraldic purposes. Small wares, trimmings, ornaments, and every species of articles for the toilet-table. The first floor is occupied with carpets in every possible style and make, hearth rugs, matting, wax cloths, blankets, sheeting, flannels, wrappers, and window-blinds. The second-floor contains an enormous assemblage of paper-hangings of every imaginable kind, quality, and hue, sufficient, one would imagine, to paper the walls of half the apartments in the kingdom. The two upper galleries are used for show-rooms for all classes of fancy cabinetwork of both home and foreign make, and articles of furniture in every possible style of modern manufacture. The surprising display of house plenishing to be seen in these galleries furnish an unmistakable proof of the luxurious habits and refined taste that have grown up among the middle classes in the west of Scotland during the last quarter of a century. The fact is, the house of a respectable tradesman now in Glasgow, is equal, if not superior to the halls of the nobles a few years ago. The sense of vision would seem to be consulted in the decoration of the homes of the people at the expense of all the other senses, and in this there is a growing rivalry. Such an establishment as the one under notice could only have attained its present standing in a thriving population where the genius of trade and manufacture was continually creating material wealth.

It will easily be seen that a house like this is calculated to exercise

no small influence over the commercial character of the town in which it is located. Messrs. Wylie & Lochhead have been social reformers in no ordinary degree; by their enterprise, they have broken down an old system among the people that was both cumbersome and unseemly, and substituted one more in keeping with the tastes and feelings of the age. As house furnishers, they are at the top of the profession. In both these branches of business they have inaugurated new systems in Scotland, suitable to the altered circumstances and feelings of the people of all ranks.

Before closing this chapter, we may notice that the large warehouse, formerly occupied by this firm in Argyle-street, has been converted into a very different use to any that its proprietors could at one time have dreamed of. From what has already been said of the increase of the population of Glasgow, and the consequent altered state of her social condition, it will be evident that every advance she has made in her onward course must have produced a corresponding change in the tastes and habits of her citizens. Whether men are civilized or in a savage state, amusement is a necessary part of their existence. All ordinary communities require a certain amount of pleasing irritation through the channel of some of their feelings. The exuberance of human passion must be carried off either in the domestic home, in the arena of the drama, in the society of those they love, or in such places where they can be infected with happiness through their own perceptions or the sympathies of others. There can be no question of the fact that all our real worldly enjoyments are those we receive in our association with our fellow-beings; and the great aim of modern philanthropists is, to make the amusements of the people innocent in character and of easy access.

For some years past Glasgow has been pretty well supplied with numerous places of amusement. The theatre has long been under excellent management, both for efficiency and the moral tone of its amusements. There are certain classes of people, however, who have no taste, or profess to have none, either for theatres or singing saloons. In order to obviate this difficulty, a number of the leading mercantile men of Glasgow have united together for the purpose of establishing an institution in which the public may have the means of enjoying themselves, both in a pleasant and profitable manner, at a trifling cost. The above warehouse has therefore been converted into a polytechnic, in which there are two magnificent halls, with a suite of smaller apartments. This place has been fitted up with a splendid selection of works of art, mechanical appliances, and scientific apparatus of every description, under the superintendence of Dr. Wylde. The visitors to this exhibition have the means of witnessing the strange mysteries of nature unfolded by experiments under the careful surveillance of professional men. The extraordinary powers of mechanism are illustrated by numerous machines at work. A regular course of lectures are delivered by scientific gentlemen on various subjects of special and general interest. The lighter amusements consist of optical delusions, artificial fountains, and tricks in natural magic.

This institution is certainly a move in the right direction in Glasgow. The people will, and must have amusement, and it is well that its character should be sound, healthy, and of a rational nature.

We have no doubt in our own mind that the time is not far distant, even in Scotland, when places of innocent recreation will be thrown open to the public on Sundays. Less whisky and a smaller quantity of theological dogmatism will do the morals of the people no harm!!

Since writing the above, we are sorry to learn that this splendid establishment has been totally consumed by fire. The exhibition, however, is now about being carried on in another building.

ST. ROLLOX CHEMICAL WORKS.

If there was no other manufacturing or commercial establishment in Glasgow than the stupendous works of Charles Tennant & Co., it would be a place of commercial importance. This chemical laboratory stands alone in its greatness, not only in Great Britain, but there is nothing equal to it in the whole world. To the local historian and the political economist the rise and successful progress of large commercial establishments must afford valuable matter for reflection, more particularly when they are able to trace the ameliorating influence such establishments exercise over the social condition of the people and the general prosperity of the nation. Although there are certain requisites necessary for the proper management of even the most simple forms of business, we know that there are some men who succeed by mere fortuitous circumstances rather than by any merit of their own. One thing, however, is certain, that the man who enters on business with prudence, industry, talent, and strict application must have a hundred chances to one in his favour over the person who lacks these necessary requirements. The founder of this now gigantic establishment was no ordinary man; he not only possessed the above requisites, but he had also a creative genius of no ordinary character. The late Mr. Charles Tennant was one of those men who lived in advance of the age in which his lot was cast. As a manufacturing chemist his name stands in bold relief among the commercial pioneers of the present century. His political sympathies were based upon the broad principles of equal law and justice to all, which, in his time, was no very acceptable doctrine in the middle and upper ranks of society. As a man and a citizen he lived with a spotless reputation; and to us it is no small matter of pleasing reflection, that we enjoyed his friendship although our relative positions in society were very different.

It is now somewhat more than sixty years since these works were established for the production of bleaching powder, soap, soda, and sulphuric acid. In 1774 *chlorine* was discovered by the celebrated Schiele, shortly after which its wonderful properties as a cleansing and deodorising agent were found out and introduced to the commercial world. Like all new discoveries great difficulties were opposed to its general use by the ignorant and interested members of society. It was reserved, however, for the late Charles Tennant, with the aid of

his illustrious friend, Mr. Watt, to discover and bring into practical operation the combination of chlorine with lime, thereby forming the well-known bleaching powder, which is now such an important feature in the commerce of the country.

As might have been anticipated, this discovery immediately effected a complete revolution in the whole system of bleaching, and as a consequence, led to a signal reduction in the price of both linen and calico fabrics. At the present time it can only be known to few people, that the process of bleaching was formerly a tedious as well as an expensive one, compared to what it is now. In a general way the old method of bleaching required from six to twelve months, or as long as it would take to tan a hide for soles for our under-standings! It is worthy of remark, in now looking back to the good old times, when both men and commerce were struggling in their swaddling-clothes, that no inconsiderable quantity of our soft goods were sent to Holland to undergo the process of purification. When the brown goods were sent away in those days their owners might expect them when they were returned! The use of chlorine in bleaching has reduced the months to hours in the time required for the change. The use of bleaching powder has not only effected a revolution in the linen and cotton trades, but it has changed many of the domestic arrangements in the homes of the country people. In our youth we have often contemplated lovely pictures by clear running brooks, in the neighbourhood of farm-houses, where the bleaching process was being carried on under the superintendence of some lovely rural nymph with her watering-can. We have more than once felt the warm glow of love steal over our bewildered senses while gazing at some fair form employed at this occupation and tripping the lawn with bare under-standings.

Mr. Tennant patented his new method in 1798, when the torch of civil war was fiercely burning in Ireland. Since that time St. Rollox has been pre-eminent for the manufacture of bleaching powder. Sulphuric acid, the vitriol of commerce, is made in these works in really fabulous quantities. The generality of people look upon vitriol as a very unimportant article, and therefore have no idea of its real value as an agent to the well-being of society. There is nothing strange in this, when we consider that the most learned only see things in part; and although many of the secrets of nature have lately been unfolded to the astonished gaze of man, there are still numerous agents whose wonders are yet in store for us. Without vitriol, neither bleaching powder, soap, nor soda could be made. Electroplating could not be carried on, our dye-works and electro telegraphs would instantly be brought to a stand. The fact is, sulphuric acid may be looked upon as the very life's blood of many of the arts, and without it, chemistry, the great humanizer of mankind, could neither live, move, or have its being.

When we trace large rivers to their source and follow them in their windings to the ocean, we find they gradually expand; and we can scarcely believe them to be the offspring of the tiny rivulets we once beheld them. Those who can remember Mr. Charles Tennant's works

at St. Rollox between fifty and sixty years ago must have observed it, like the rivulet, gradually swelling into a huge establishment. For sometime after this business was commenced, it is said that the whole produce of the work was sent down to Glasgow daily upon a hand-barrow!! It must be remembered, however, that such is the altered state of manufactures since then, that one house now in Glasgow will consume more chemical produce than the whole of the manufacturing houses on the banks of the Clyde did sixty years ago. This brings to our mind a statement we heard related of the Messrs. James & William Campbell. It is said (and we believe truly), that these gentlemen have more counter-fittings in their three warehouses than there was in all Glasgow when they commenced business in 1817!

The interior of St. Rollox works is certainly the most extraordinary labyrinth ever man put his foot in. We have no idea of the number of furnaces in operation for making the three principal articles—soda, soda-ash, and chloride of lime—but there must be some hundreds. The soap department is itself a large manufactory. In this place sixty tons are produced upon an average weekly. When the soap has undergone the process of making, the material, while in a liquid state, is put into iron-frame moulds five feet deep by fifteen inches. When the soap becomes solidified it is cut into long blocks by a fine piece of wire, these again are cut into wedges of a certain weight and built up into large stalks. A stranger in going into this warehouse would conceive he was being introduced into the society of an immense quantity of bricks of various colours.

The most extraordinary part of the works is that in which the sulphuric acid is made. In going into this place we pass between two mountains of sulphur, each of which contain 5,000 tons. We then enter a devil's den, with an immense row of glowing furnaces on each side of us and huge lead tubes above our heads and around us. After we have been half roasted and our lungs, struggling with the atmosphere, loaded with sulphuric gas, our good Mentor takes us up a flight of narrow wooden steps until we ascend some hundred feet above the surrounding buildings. It would be utterly impossible to describe the surprising scene that meets the view. Immediately beneath us there are fifty-eight lead chambers for receiving the sulphurous gas, and converting it into vitriol; each of these immense areal reservoirs hold 21,000 cubic feet of gas. These chambers are approached by many miles of wooden stages, from which, down to the south and west, the huge city forms a most glorious picture, with the cathedral in the foreground, with the impress of 700 years. Looking to the west, beyond the town, the Frith of Clyde expands, and again steals away among the mountains of Argyleshire, with the Castle of Dumbarton resting, as it were, on the bosom of the water. Turn which way we will, a magnificent panorama meets the eye. In looking to the south-west, we take in Langside, where poor Mary lost her kingdom, and the ruin of Crookston Castle, beneath whose walls she rested in feverish anxiety while her sad fate was being sealed. Turning our eyes to the north-east, we are confronted with the mammoth stalk, whose altitude is 450 feet, with a base of 50 feet, and 9 feet 6 inches

over the top. This huge monster is continually pouring his sooty treasures into the region of the clouds. If we cast our eyes to the north, we take in the range of the Campsey Hills, and we can discover the valley in the intermediate space along which the indefatigable Romans built a wall to keep the hardy mountaineers in their own bleak wilds. Farther to the north, our eyes rest upon the hoary-headed Benlomond, and we think of the bold outlaw Rob Roy M'Gregor, and his daring clan of freebooters. The fact is, if we were to describe the numerous scenes in the field of vision while we stand upon this elevation with their varied beauties and historical associations, the printer's devil would have more work than we intend him. It may give some idea of our æreal position upon this stage when we say that a gentleman who accompanied us up, was obliged to make his way down again as speedily as possible. Poor fellow, his weak nerves prevented him from enjoying such a treat as he may never have the opportunity of witnessing again.

We are once more on the solid earth, and much of it is melting in our presence. Men are moving about like spirits in the fitful glare of the fiery furnaces; some are breaking up the mountains of crystalized soda, others again are bearing immense loads of salt into furnaces. We may mention that this material is the basis of all the leading articles manufactured in the work, with the exception of vitriol.

We are now introduced to the company of a pair of stills, in which the sulphuric acid is reduced in bulk and raised in strength. These stills are made of platina, no other material will stand a fellowship of such intense heat with the corroding liquid that passes through them. Upon leaving the work, we pass between huge air-tight chambers in which the chloride of lime is made. Eighteen tons of lime, finely powdered, is put into one of these compartments, and after it has undergone the necessary process, it comes out twelve tons heavier than when it went in, having absorbed two thirds its weight in chlorine while undergoing the change. Before we leave this division of the work, we too have undergone a change, having entered in a suit of mourning, we came out dusty millers! We can now breathe somewhat more freely, and although we admire the work for its extraordinary character, we must say if we had the choice, we should rather live next door than occupy the most genteel apartment in it. This part of St. Rollox chemical work only occupies thirteen acres!!!

If our reader has no objection, we will be happy of his company while we take a stroll over another department belonging to the same establishment. About a hundred yards to the east, we arrive at another large work that cannot occupy less than three acres. When we enter here, the first thing that takes our attention after passing the porter's lodge, is an immense mountain of wood hoops; these are brought from Norway, where they are contracted for. Passing onward, we enter a large brick building, where our ears are greeted with the noise of a large amount of machinery. This is the St. Rollox cooperage. From 800 to 900 casks, large and small, are turned out in this place weekly on an average the year round. Seeing that so large an amount of work is done, we will necessarily look for an army

of coopers. In this, however, we will be disappointed. Every part of a cask is fashioned and made by machinery. In one place the staves are planed and shaped, in another the heads and bottoms are cut and bevelled. The staves necessary to form a cask are set up by men for the purpose with a single iron hoop; the embryo cask is then placed in a steam-chamber, and when taken out, is put in another chamber, where the two halves of a mould of the required size are made to enfold the staves by the powerful aid of a Bramah press. When the cask comes out of one of these machines it is braced tight by four strong iron hoops. All that requires to be done to complete the work, is to put on the wooden hoops and fit in the ends. Some idea may be formed of the immense number of hoops required for this work when it is known that each cask is bound by sixteen; this will give 134,000 weekly, or 6,710,000 annually! The most of the manual labour done in this place is performed by boys.

The wheelbarrow of sixty years ago has long since been superseded by other modes of conveyance. For some time past the firm of Charles Tennant & Co. have had two screw steam-vessels plying between London and Glasgow, and a third steamer carries the produce of their works to the various ports of the Baltic, and returns freighted with materials for their own consumption. Numerous coasting vessels are constantly employed in bringing limestone from Ireland, and sulphur from Italy. The firm also have coal-mines of their own, with an iron-foundry to supply the machinery and other necessary fittings of their works. It may appear incredulous to many of our readers when we state that 100,000 tons of coals are consumed on the premises annually! The average number of men employed in the works is 1,000; the number of people, however, employed, directly and indirectly, must exceed that by at least eight times. The following materials were consumed in the year ending 1854:—

Coal	...	...	...	90,162 tons.*
Limestone	...	...	...	30,000 „
Salt	...	...	...	17,000 „
Sulphur	...	...	...	5,600 „
Manganese	...	...	...	4,500 „

The whole of the chemical works are laid in all directions with permanent railways for the transit of both raw and manufactured materials.

From the returns made by the Messrs. Charles Tennant to the Industrial Exhibition of Paris in 1854, the following quantities of the subjoined articles were manufactured by them during the previous year:—

Soda-ash	...	...	...	12,000 tons.
Do. in crystals	...	...	...	7,000 „
Bleaching powder	...	...	...	7,000 „
Sulphuric acid	...	...	...	2,000 „

* If we take into account the coal-dross consumed on the premises, we believe the entire quantity exceeds two hundred thousand tons annually.

In reference to the sulphuric acid, we may mention that the above quantity was what was made for sale only. We believe the quantity required for their own use amounts to at least 14,000 tons annually.

It may be supposed that the sulphuric department of these works was highly pernicious to the health of those engaged in it. From what we have been able to learn, the average health of the men employed is equal to that of any similar number of unskilled labourers engaged in any other business. These gentlemen have always evinced a humane regard for the well-being of the people in their employ. For many years they have retained the services of a medical gentleman, who has long been known in Glasgow for his philanthropic and public spirit. They also support a school upon their own premises for the free education of the children of their work people. When we were in Glasgow, in the early part of 1858, the Messrs. Tennant were then erecting a large building for a new school-house calculated to hold two thousand pupils. This school will provide an improved system of education for the children, both male and female, such as will enable them to go into the world very differently prepared to perform their parts on its stage to that of their parents.

Glasgow may be justly proud of many of the living monuments of her genius and enterprise; but we should say, that if she had only this single establishment to boast of, she would still have much to flatter her pride. When the present race of Tennants have passed away, they will have left their names indelibly stamped upon the history, not only of Glasgow, but upon that of the social progress of the nation. Mr. John Tennant may feel justly proud of the order of the legion of honour conferred upon him by the Emperor of the French; and we should say, if his own countrymen had the same estimate of high scientific and commercial merit, he would wear a ligature upon his right limb.

When the works of Mr. Tennant were first established at St. Rollox, they were completely isolated and stood alone in their fragrant glory. What a change has come over the dream of that once dreary locality. The whole district for miles is now teeming with manufacturing life; potteries, glass-works, saw-mills, wood-yards, flax and cotton-mills, ironfoundries and machine-shops, coal depôts, earthenware manufactories, railway stations, and a busy hard working and commercial population occupy almost every inch of the ground. During the last twenty-five years, the progress of trade and manufacture has been so rapid in this locality, that Port-Dundas and St. Rollox have become an integral part of the city, whereas in our time these places, along with several others that were formerly isolated districts at a considerable distance from the town, now repose in her arms.

There is another chemical work within the distance of a mile from St. Rollox, at Port-Dundas. This place of business has only been in existence for a short time, we believe not more than five or six years. For some time its manufacturing operations were only of a trifling character. At the time of our visit the chemical manufactory of Mr. Townsend had become one of the wonders of Glasgow. The business carried on in this establishment is quite peculiar to itself, so far as

Scotland is concerned. We have been in charnel-houses and lazarrettos, but during the whole of our existence never passed through such a valley of dry bones as we witnessed in this strange dissecting-room.

The premises occupy an area of 14,000 square yards, and the whole of this space is covered with different classes of apparatus that would puzzle any ordinary philosopher to understand their use. The articles made in this work are charcoal, the product of bones, for the use of sugar refiners; glue, or size, for calico printers, and a substitute for cow-dung, for ditto; grease for soapmakers; ivory-black, vitriol, sulphate of ammonia, and manures. The whole of the above articles, with the exception of vitriol, are the produce of dead animals. The building stands upon an inclined plane, with its upper end close to the Port-Dundas Canal Basin. At this part of the premises the whole of the raw material is brought into the work. A large portion of this material consists of dead bodies of various classes of animals, such as horses, carcases condemned in the hands of butchers, or of any other that may be brought to the premises. Immediately beneath the entrance platform there are several huge boilers, capable of holding several thousand gallons each. Upon this platform, which is an immense covered-in space, there is an apartment partitioned off which may be styled the dissecting-hall. In this place the bodies are treated much in the same way the criminals were served at one time, after taking leave of their friends and the world at Tyburn, by being drawn and quartered. When the skins are worth taking off, this operation is performed; but if otherwise, both hides and tails are mercilessly hurled into one of the boilers, where the whole mass is reduced to a pulp.

Adjoining this apartment is another large two-storey building for picking bones, &c., 140 feet long by 40 feet wide.

In other parts of the work there are long ranges of glowing furnaces in which certain classes of bones are calcined. In another set of furnaces large quantities of pyrites of iron are roasted, in order to liberate the sulphur they contain. The gas from these devil's ovens is conveyed by lead pipes into nine immense leaden chambers where it is converted into sulphuric acid.

It appeared to us somewhat strange that manures could be produced from dead carcases and be remunerative; but when it is considered that there are at least three other articles of commerce produced in the operation, it will be seen that the business is likely to be more profitable than would appear at first sight. During the last twelve months, Mr. Townsend has been making from a hundred and fifty to two hundred tons of animal manure weekly. The price of this article is from seven to nine pounds per ton. We have no idea of the amount of ammonia and fatty matter produced in this establishment; but the average quantity of vitriol is seventy tons, and from ten to fifteen tons of charcoal weekly. The whole of the vitriol manufactured in this work is consumed on the premises. This extraordinary agent is used by Mr. Townsend in his chemical necromancy, by which means he transmutes useless substances into valuable articles of commerce. In this establishment we have

an island of Echebo at home, where guana is continually being made with all the fertilising properties of the real excrementitious matter. It is said this gentleman is realising a fortune rapidly. Be that as it may, he is a public benefactor if he makes a single acre of soil more productive than it would otherwise be. Under any circumstances, he is using the magic key of science to unlock the secrets of nature for the benefit of society.

In the centre of the works a large chimney is in the course of erection, which, when finished, will be the largest in the world, some idea may be formed from the quantity of bricks it will contain, viz., 1,500,000, its height will be 460 feet, the cost will be near 5,000*l*. The object of this chimney is to carry away the various gases, smoke, &c.

Although this work is really a curiosity and well worth a visit of the enquiring stranger, we should say that there are not many gentlemen who have any respect for their personal appearance who would fancy a journey through its half-daylight mazes, dusty atmosphere and roasting dens, with the infernal noise of its grinding and crushing machinery sounding in their ears. So far as we are concerned, we would as soon explore the subterraneous caverns of a coal mine. If any of our readers should feel curious to see this really strange work while visiting the commercial capital of Scotland, we can make them sure of a warm reception from the proprietor. This gentleman, like an industrious ghost in costume appropriate to its duties, may be seen from morn to night attending to the operations going on in all parts of the premises.

CHAPTER VI.

THE first half of the nineteenth century has been a period of the most extraordinary revolution in the annals of human progress the world ever witnessed. During the last thirty years, a great portion of the human race have broken down the ancient barriers and conventional restrictions that formerly surrounded them, and have launched themselves freely on the restless ocean of universal speculation.

Fifty years ago, the great body of the people in Great Britain were wont to vegetate in the localities that gave them birth; and when they had bloomed and ripened, their small moiety of dust went to fructify the soil for others that were to follow. When we look back at the past, and compare the cooped-up condition of our venerable forefathers with the locomotive freedom we now enjoy, we are furnished with ample food for curious reflection.

According to the usages of the present age, with the enlarged feelings and sympathies of civilised men, one would almost imagine that we were rapidly approximating to a universal brotherhood, and that the age of both family and national traditions was passing away.

If men become better as they grow wiser, the change will be a universal blessing, and consequently one which every right-thinking man would hail in the full joyousness of his heart. But if, on the contrary, men's intellects only become sharpened for the purpose of

taking advantage of each other, then we would say that wisdom was folly, and ignorance bliss; and that we had better remained in our old fashioned detached sections of families and nations, with all our deep-seated prejudices, and home sympathies clinging to us through all our future generations.

It is a fact worthy of notice that Glasgow has taken the lead in several of the most useful improvements of the age. The introduction of cheap and comfortable travelling in towns owes its origin to a Glasgow man. On the first of January, 1835, Mr. Robert Frame—who had been a reporter to the *Gazette* newspaper—commenced to run an omnibus between Bridgeton and Anderston, a distance of two miles, the fare being only twopence. Before that time, there were very few omnibuses in the United Kingdom, and those that were in use were run upon the old fashioned, exclusive high rate principle. Mr. Frame had been only six weeks in his new business when he had to encounter the opposition of no less than four opponents in succession. Notwithstanding this early rivalry, he steadily pursued the business for upwards of two years; and, though his capital was small when he entered upon the speculation, he realised one thousand pounds in stock during the first fourteen months.

Nothing is more true than that “there is a tide in the affairs of men, which, taken at the flood, leads on to fortune;” but, in our opinion, it is equally true that as their vessels sail down to the sea of prosperity, they are liable to be wrecked by the dangerous and unforeseen storms of adversity. Such was the case with this gentleman; and he manfully stood at the helm of his little craft, until there was no hope of rescue.

The year 1847, covered the heart of the nation in the gloom of melancholy. The price of provisions, both for man and beast, ran up to almost a famine standard. At that time the price of grain, in some instances, rose as high as 40s. per boll; and the consequences were most disastrous to nearly all the posting-masters in the kingdom. The result of this unfortunate state of things was the total ruin of Mr. Frame's career as a public benefactor. Such had been the enormous depreciation of stock consequent upon the rise in provision that his effects, which were valued at 2,000*l.* previous to his bankruptcy, realised 400*l.*! Thus it is that ‘the best laid plans o’ men and mice gang aft aye.’ But although Mr. Frame was obliged to succumb to the adverse circumstances of the times, he had taught the world a useful lesson in the principles of social economy, and identified his name with the history of cheap town travelling. Eighteen months after he led the way, the cheap principle of urban transit was fairly recognised in London and several of the large towns in the kingdom.

It was a considerable time after Mr. Frame's failure before any other party attempted to carry out the new system in Glasgow. The first who made an essay in the business were only in a small way. The name of the firm was Forsyth & Craig. These parties were also unsuccessful, and had to retire from the field somewhat lighter than when they entered it.

The above firm was succeeded by Mr. Menzies. This gentleman

appears to have had both capital and energy sufficient to make the speculation a profitable one. He not only extended the business, but also introduced an improved set of omnibuses. The vehicles were both safe, commodious, and handsome. Instead of running two horses in his omnibuses, as formerly, he adopted the plan of placing three horses abreast. This system has since been acted upon in Manchester, Liverpool, and London.

When it was seen that this gentleman was successful in the undertaking, several large coach proprietors took the field in Glasgow, the consequence of which was a gradual extension of the business; and after some little fighting between the contending parties for the best paying routes, the town and suburbs were divided by mutual arrangement among three houses. These were Mr. Menzies, Mr. Walker, of the Tontine, and the Messrs. Wylie & Lochhead.

During the last seven years several small proprietors have made attempts from time to time to divide the public favour, but those named having both capital and all the necessary appliances at their command, left them little chance of continuing the unequal struggle.

So far as the social history of Glasgow is concerned, we certainly think there is no subject better calculated to illustrate her wonderful progress upon the scale of material improvement, than her private and public carriages. These vehicles are a certain indication of high social standing.

It is very little more than a hundred years ago since there was only one gentleman in Glasgow who could sit in a carriage of his own. At that time, if either a lady or gentleman required to have his or herself removed from one place to another under cover, instead of using horses he or she would have had to command the services of a pair of gentlemen and a sedan chair. It is very possible that these machines were very comfortable conveyances, and, if slowness was any recommendation, nothing could be more appropriate. We remember an anecdote of an Irishman travelling in one of these conveyances without a bottom. After he had got to the end of his journey, he turned about to the men who had carried the machine, and, with a knowing leer lighting up his countenance, exclaimed, "By jabers, boys, I might as well have been walking, if it had not been for the honour of the thing!"

We have not been able to learn when public carriages were first introduced into Glasgow for town conveyance, but are inclined to think it was very little before the year 1830. According to Dr. Strang's account, there were 402 private and public carriages in Glasgow and the suburbs in 1832. It must be remembered that the heavy coaches were then on the road, and, of course, the whole of these vehicles belonging to the town would be embraced in the above number. From the year 1830 up to 1836, Mr. Lyon, who was then the largest coach proprietor in the West of Scotland, had somewhere about twelve coaches running between Paisley and Glasgow daily. Up to the latter date, stage coaches plied to the following places:—Portpatrick, Ayr, Kilmarnock, Carlisle, by the middle road through Dumfries, Carlisle by Hamilton, Hamilton, Lanark, Wishaw, Edin-

burgh, Stirling, Strathaven, Duntocher, Milngavie, and the mails were also numerous about this time, which, of course, would swell the number of stage coaches.

The wheelbarrow may be looked upon as the father of the cart, and Mr. Allan Dreghorn's rude carriage, which was built by common joiners in 1752, may be looked upon as the progenitor of the goodly brood of private vehicles which are in Glasgow at the present time. In 1854, 988 private gentlemen could air themselves and friends in as many genteel machines. There can be little doubt that the above number has increased to 1,000. In the same year, the number of public town conveyances mustered 238.

The following memoranda may be referred to in after years, when the present system of town travelling may have followed the sedan chairs. For some time past the city and suburbs of Glasgow have been divided in the following manner between the undermentioned gentlemen :—

Mr. Menzies' omnibuses make twenty-four journeys each way, from Port-Eglinton to the crescents, daily, a distance of two miles; twenty-six journeys from Bridgeton to the crescents, each way a distance of three miles; twenty-four journeys from the Cowcaddens to Whitevale, each way a distance of two miles; eleven from St Rollox to the Paisley-road, three miles; five to and from Pollockshaws and Thornliebank, three miles; six from Glasgow to Renfrew and vice versa, and from the Cross to Anderston every five minutes, each way one mile.

Messrs Wylie & Lochhead's omnibuses run from Argyle-street to Partick, fourteen times, each way three miles; fourteen times from Argyle-street to Sandyford-toll, each way, two miles.

Mr. Walker runs the following journeys daily :—London-street to Lansdowne-crescent, each way eleven times, two miles; Botanic-gardens and Gartnavel, four times, each way four miles; Partick, from London-street, fifteen times, each way three miles; from London-street, to Baillieston, each way four miles, six times; Rutherglen, from London-street, each way three miles, nine times; Milngavie, five times each way; Renfrew, six times each way, five miles; Bothwell, twice, each way nine miles; Strathaven, once, each way sixteen miles.

Upon a rough calculation, we should say that the vehicles of these firms traverse 2,300 miles daily, which is certainly a very surprising circumstance, when compared with the habits of the Glasgow community less than forty years ago.

If we add the mileage travelled by 200 cabs, which daily occupy the stands in town, and allow each ten miles a-day, we have a total distance traversed of 4,300 miles. We think it would be a nice calculation to ascertain how many sedans, with the number of legs and arms it would require to travel the same distance!

If the canny Scotch were ever a stand-still people, they must be wonderfully altered. We have often heard the old adage dinned into the ears of a go-a-head people, "that a rowing stane gathers nae moss." We should think that very wise saw may be changed into—"he that bides at hame is sure to rust."

The Glasgow omnibuses are decidedly the most handsome and

commodious in the kingdom. Similar conveyances have been lately introduced into both Manchester and Liverpool, where town travelling has been completely changed for the public advantage, both as to charge and accommodation.

The people in London, too, who require cheap conveyance from one part of that mighty wilderness of bricks and mortar to another, are under a debt of gratitude to the ex-reporter of *Peter M'Kenzie's Gazette*, for the advantages they now enjoy in this great social improvement.

It is worthy of remark now, that when Mr. Frame found he could not weather the storm of his difficulties, as a last resource he petitioned Government to remit a part of the mileage duty he was then owing. It must be borne in mind that this duty was one of his own creating. The Government very civilly returned him a negative answer. His own remark upon the subject had a good deal of truth in it, which was to the effect, "that had he introduced a system for the public good, either in a republic or a despotic state, his claims would have been attended to in a very different manner." The civic authorities of Glasgow, to their credit be it told, took a different view of Mr. Frame's case, inasmuch as they recognized the services he had rendered the public, by creating a new office for him, under the control of the Police Establishment. This was done by appointing him Public Inspector of Cabs for the City, which situation he holds up to the present time, with no small credit to himself.

It would take a man with a better calculating head than embellishes our shoulders, to estimate the result of the system brought into action by Mr. Frame. Who knows but some of his family may yet wear upon the panels of their carriage an omnibus rampant, with a hand dexter?

Some of our readers may think that we have attached too much importance to this subject. Our opinion, however, is, that we could not have produced any other circumstance connected with Glasgow so well calculated to show the change that has come over the social condition of her community.

CHAPTER VII.

STARCH MANUFACTURE, AND CONFECTIONARY BUSINESS.

THE progress of civilisation is not only continually suggestive of change, but is highly revolutionary. During its onward march, men's tastes, thoughts, and habits, become characterised by new features at every stage. It requires no great amount of observation, or historical research to ascertain the difference between the social appliances of the present age in Scotland, and the one that immediately preceded it. One of the most important signs of the times is the really surprising increase in the wants of the people, and their power to minister to them.

In the early part of the present century, the Scotch were looked upon as a hardy, stiff-necked people. It may, therefore, be supposed that they did not require artificial means to increase their unyielding

nature. We shall presently show, that as the natural man becomes more pliable by the aids of civilisation, he never loses sight of the dignity and value of genteel stiffness. Less than twenty years ago, we believe there was not such a thing as starch manufactured north of the Tweed. Scotland then, as now, had her *sark*; but when it is remembered that this useful part of the male dress was generally made of *harden*, it will be obvious that it did not require the aid of glutinous matter to make it more unpliant. Less than fifty years ago, the matrons in the country parts of Scotland were satisfied to wear their linen mutches (Anglicè caps) with mull muslin borders as supple as their own organs of speech. Since those days the science of clear starching, and the perfection of the laundry, have been the means of not only altering the tastes of the ladies, but in many instances have caused a complete revolution in the whole of our domestic economy.

The revolution produced by the application of starch to the ornamentation of the sexes, is much greater in a social point of view than most people imagine. Starch is not only a preventive against dirt, but its use may now be looked upon as a badge of social distinction. The difference between the man whose linen is fresh from the laundry daily with its bright enamel, and the one who figures in a once-a-week mangled or ironed garment, may be looked upon as belonging to the opposite extremes in society. We can well remember the time when a starched *Richard*, vulgarly denominated a Dickie, was to us a matter of no small pride. At that time Beau Brummell had set the fashionable world in motion (we mean the male portion of it) with the idea that starch was a moral refiner. We have yet pleasing recollections of blue coats, gilt buttons, swallow tails, and waists high up the spinal column, and faces encased in collars so stiff, that the rotatory action of the vertebra was turned into a hinge joint!

The developement of social science in Glasgow has been the means of calling forth many new branches of business, as well as perfecting several old ones. In the year 1843, Mr. William Wotherspoon, of Paisley, became proprietor of a small starch manufactory near that place. Before his time, nearly the whole of the starch used in Scotland was manufactured in England, either in London or Nottingham. The gentleman who had been previously engaged in this business in Paisley, may be said to have failed in turning it to a profitable account. The case has been very different with the present proprietor. During the last twelve years the business has gradually developed itself until it is by far the largest concern of the kind in the kingdom.

We remember to have been shown through the establishment at Glenfield between ten and eleven years ago; at that time it was looked upon as a place of considerable note. Upon our visit to the works in March, 1858, we could scarcely recognise it to be the same. Since then the premises have undergone a complete change, not only in their enlargement, but in their internal arrangements. Glenfield Starch manufactory is pleasantly situated on the south-west side of Paisley, right in front of "Gleniffer's Sunny Brae," immortalised by Scotland's sweetest son of song, Tannahill. The keep of Stanley Castle, too, can be seen on the eminence less than a mile from the

works; and at a short distance below it, the gulph in which the melancholy Bard "shuffled off his mortal coil" may be viewed by the enquiring stranger. The manufactory is a large brick building with a very unimposing front. When a stranger, however, passes into the large court-yard, his ideas of the place undergoes a complete change. The starch-house is a large enclosed area with an arcade glass roof supported upon iron pillars. The floor of this department is paved with red bricks, and the whole of it is intersected with railways in order to facilitate the removal of both the raw material and goods in a manufactured state. The floor of this place is covered with an immense number of large wooden vats in which the sago is made to undergo the process of manufacture. Immediately in connection with this part of the building, there are two large water filters, which are continually in operation. It will be very obvious that the superior character of the starch must in a great measure depend upon the purity of water used in its manufacture; every attention is, therefore, paid to this department. Two large stove rooms run off from the starch-house at right angles with permanent railways, for the transit of the material backward and forward. These stoves are constantly in use, and are regulated to a certain temperature. When the starch is sufficiently divested of moisture, it is removed to the packing-room. This department is a large oblong saloon about a hundred feet in length, with a considerable portion of the roof covered with glass, and benches ranging along the two sides the whole length. Cleanliness is one of the principle features of this room, being absolutely necessary to preserve the purity of the starch. In this place there are about one hundred girls, many of whom range from fourteen to twenty-five years of age. To a stranger, it is surprising to see with what facility these females put the packages through their hands. On the opposite side of the building another saloon, of the same size as this one, runs parallel with it; in this place the paper bags are made, and the packet labeling is carried on. In this department it is found that girls from ten to fifteen years old are by far the most expert in bag making. Some idea of the character of the work may be formed when it is stated that there are fifty girls employed in this department alone, who turn out upon an average daily seventy thousand bags. When the varied sized packages are made up and labeled, they are sent to the finishing room where they are made up into seven pound parcels; these are also labeled with a colour peculiar to the house, (green) after which they are removed to the warehouse.*

This work affords employment to a large number, male and female, and we may note that the business is not only peculiarly healthy, but from the attention to order and cleanliness it is a very pleasant species of labour.

In the firm of Wotherspoon & Co., we have another example of what may be done with well-directed enterprise. The name of Glenfield starch is now familiar in every part of the civilised world. From the laundry of her Majesty to the garret of the poor seamstress this starch

* It may be noted that these labels are continually being imitated by other houses in the trade.

is found to be a necessary domestic appliance, and we believe there is not a town of note in any part of the United Kingdom in which this house is not represented by one of their agents. Four hundred and eighty thousand packages weekly of this material must employ the delicate fingers of many thousands of maids and matrons in every part of the world. We can well imagine some of the fair daughters of Renfrewshire who are exiled from home, while manipulating their little articles of finery in their homely laundries, chaunting "Gloomy winter's *noo* awa," and thrilling their notes in reflective tones with their minds far o'er the deep. Some, too, may call up the reminiscences of home when beholding the labels of Glenfield, and amuse themselves with—

"Sweet the *craw-flowers*' early bell
Deck Gleniffer's dewy dell,
Blooming like thy bonny sel',
My ain, my artless *dearie*, O ;"

or their minds may wander to "Louden's bonny woods and braes," or to the scene of "Jessie the flower o' Dumblane." Some of our readers may ask what connection there can possibly be between starch and poetry? Our answer is, that whatever is calculated to afford amusement and pleasure to the ladies, whether by their domestic hearths, in the green fields, or in "the joyous throng," must be pregnant with poetical sentiment. Our opinion is, that lovely women are nowhere to be seen to better advantage than when employed in those little domestic occupations where the genius of order and cleanliness presides. Depend upon it, gentlemen, if a woman attends to her washing-tub, and understands the use of starch, she is sure to make a good wife, and therefore the noblest object of man's poetical aspirations.

The secret of the success in the business of the Messrs. Wother-
spoon will be found in their attention to two things, viz. their uniformly producing a first-class article, and the arrangement of a proper division of labour. We believe there never was a more utilitarian age than the one we live in. Both manufactures and commerce are made subservient to their conductors by the application of system. In the olden time, if a man served his apprenticeship to a trade, it mattered not how complicated it might be with details, he was obliged to learn the whole. At the present time, mechanical professions are split up into numerous branches, and it rarely happens that a man learns more than one process of his business. There are three advantages immediately arising out of this order of things, these are facility, economy, and perfection. If the Messrs. Wotherspoon had conducted their business upon the old no-system plan, the name of Glenfield would have remained known only to a few people in the immediate locality.

We may mention that the whole of the starch manufactured by this firm is made of pure sago. Whether this material offers any special advantages over other farinacious substances we cannot say, but should think it must, inasmuch as it is much higher in price than several others in use. One thing is plain to us, that both colour and purity

must have been attained in their highest degrees before a business like this could have been established upon a scale of such magnitude, with its ramifications over a great part of the world.

It will be seen that we have headed this chapter with two branches of business, almost as dissimilar as horses and horse-chestnuts. The reason why we have connected them is, that the two trades have been successfully established by two brothers. The unprecedented character of these houses are alike suggestive of the altered tastes and condition of the great body of the people. It has long been a pretty generally entertained opinion, that the Scotch were like the ancient Spartans in their disregard for the luxuries and refinements of the table. This, however, is a great fallacy. It is true that, up to a very recent date, the people in Scotland were obliged to confine their food in a great measure to the produce of the country; and, if they were abstemious, it was from necessity rather than choice. In reviewing the past and present social condition of the citizens of Glasgow, it will be seen that we have shown how rapidly those trades and professions that minister to their artificial wants have increased.

The confectionery manufactory of Messrs. James Witherspoon & Co., in Dunlop-street, furnishes us with another illustration of the people's love of the good things of life. To be on the north side of the Tweed, where barley and peasemeal bannocks, *parritch*, and *champed potatoes* were only a short time ago the staple food of the great bulk of the people, no stranger would expect to see such an extraordinary establishment. We have no hesitation in saying that this firm use double the quantity of sugar in their business at the present time, than was consumed in the whole of Glasgow less than sixty years ago. And we have been credibly informed that they produce at least three times as much confectionery as was manufactured in all Scotland thirty years ago.

Although we knew that a comparatively large business was done in this place several years ago, we had no conception of its real character until our late visit. The premises in which this business is carried on is a large stone building, which, we believe, was originally erected for some of the merchant princes during the golden age of West Indian slavery. It is composed of three stories with a basement. Each floor is a large open space, and connected by a handsome metal spiral stair. The basement-floor is set apart for the heavy class of work. One end of this compartment contains a twenty-horse power engine, with revolving stones (three pairs), for grinding and crushing sugar. In the other part of the room there are a number of large vats, used for making jams and jellies from not less than seventeen different kinds of fruits. We believe the leading article in this part of the business is marmalade. There are also a number of boilers and machines of various descriptions used in different processes of the work. Orange and lemon-peel are also preserved in this department in large quantities. It will give some idea of the amount of marmalade made here, when we state that the firm order from two to four hundred gross of pots at a time for this article alone. Several very neat and apparently simple machines were shown to us; these are

used in giving different patterns to lozenges; each machine is made to receive a number of dies with various designs, the whole of which are made of a very finely compounded brass. Upon observing a workman cutting up a material into strips for *jujubes*, we very innocently inquired for what purpose the leather was used? It appears that, in the process of manufacture, this material requires to be subjected to a very great heat during several days. The first floor is used as a warehouse and show-room, with a counting-house attached. The second is set apart for packing, sorting, labeling, and finishing. In the back division of this floor there are a number of machines which are used in manufacturing comfits. These machines are made of copper, the whole of which are double, in consequence of being heated by steam. The motion of these cylinders is regulated according to the class of goods to be made; the centre one is of huge dimensions, and calculated to hold a large quantity of material. Several of the classes of goods made in these cylinders contain seeds of different kinds. Before seeing the operation of coating these articles, we imagined that the goods were made by a very different process; the cylinders are divided into several compartments, not unlike the steps of a treadmill. When the seed is placed in the bottom of one of the machines it is set in motion, and as it revolves the seeds fall from one step to another, by which means a constant friction is kept up. The manner in which this is done is by the application of a funnel-shaped vessel which is suspended upon a cross-bar placed in the upper part of the cylinder, but not subject to its rotatory motion. This vessel is made to pass and repass by a regular action, and being filled with hot syrup, a continual dropping of the liquid keeps falling among the seeds, and in consequence of the heat adheres, and is rounded at the same time by the continued friction. The quantities of the different classes of comfits made in the work is really fabulous. The next process in this department is that of making lozenges. Here, too, our idea of the manner of making these things was fairly upset. We had imagined, in our greenness, that these articles were made of hard-boiled sugar and cast in moulds, instead of which they are made from dough compounded of sugar and gum, made into soft cakes, and, instead of being moulded, they are cut into form by punches of different sizes. The Messrs. Wotherspoon have several machines, which were made for superseding hand-cutting, but they have all been found impracticable in consequence of the difficulty of keeping the cutters clean. The class of lozenges which are figured with designs are passed through the machines we have noticed on the basement-floor.

The Messrs. Wotherspoon & Co. are patentees for manufacturing both lozenges and comfits by machinery. The list of common lozenges comprehends fifty-two sorts: comfits, twenty-eight sorts, and candied sugars, eighteen. There are few people, whether young or old, who have much taste for medical prescriptions. In this establishment, physic of nearly all kinds is made easy. Calomel, Ipecacuanah, opium, morphia, quinine, and rhubarb, are so delightfully gilded with sweets, that the sick may bribe themselves into health by

flattering their palates. The list contains thirty different kinds of medicated lozenges. It is certainly a matter of no small comfort to the epicure, that after he has gorged his stomach with the delicacies of the table prepared by his cook, he can relieve his over-taxed nerves in the shape of a pleasing dessert.

Seeing a large number of females engaged in this department of the work, and knowing that the dears generally speaking are well able to appreciate the sweet things of the world in all their phases, we enquired if they were not liable to be a little destructive? The answer was, if the girls felt disposed to flatter their palates when they commenced the work, they soon became cloyed. Nothing so true as the fact, that the greatest luxuries soonest become distasteful. It would seem that there was no fault found with the girls for indulging to a reasonable extent, but they have no chance of appropriating any considerable quantity, as the whole of the materials are weighed, both when given out in the raw state, and when returned manufactured.

A considerable part of the third floor is set apart for a stove, in which the various classes of goods are dried. Some of the articles require to remain a much longer time than others. The whole of the goods are placed upon large wooden trays, and arranged upon a double row of sloping frames that run the whole length of the building. The temperature of this stove is raised or lowered as circumstances may require. In order that each class of goods may undergo the necessary process of drying, each tray is labeled with the date of entry, and removed when it has passed its drying probation. To a stranger, the aroma of the different essential oils is at first delightfully agreeable; but after having been in the establishment for any length of time, it becomes quite overpowering, at least, it was so to us.

In this department there is a very neat little machine used for polishing the hard confections. This is a cylinder with a double motion, it revolves upon its own axes, and moves in the manner of a hopper at the same time. The confections are put into this machine at the one end, and come out at the other perfectly clean and smooth. The wonderful facility for manufacturing the various classes of goods made in this work, enables the proprietors to supply their largest orders at the shortest notice. The application of machinery to this business must have been found of immense advantage in reducing the price of the goods, and thereby opening up a wider field for their consumption. We have here another proof that machinery, instead of displacing manual labour, creates a more extended demand for it by the necessary expansion of the business.

In these two establishments we have a further evidence of the rapidly increasing demands for articles of luxury and refinement, and thereby proving beyond question the altered social condition of the people. Notwithstanding the imputed taste of the English people for a high standard of living, there is no place of business in the whole country equal to that of James Wotherspoon & Co's. It may be noted, however, that in England, confectionery for domestic purposes is more frequently made in the homes of the people than in Scotland. Where fruit is produced in abundance, the people have more oppor-

tunities of learning the higher branches of domestic cookery, than in those countries where such produce is scarce; and there can be no doubt but the tastes and habits of the people are formed by the circumstances which surround them. We can well imagine how soon a Lochabar man would lose his taste for his native *brose*, after having been located in Herefordshire or the East Riding of Yorkshire for a short time.

Whatever the Scotch people may be awanting in the home appliances for the table, it is evident that both their tastes and circumstances have been consulted of late by the more enterprising of their countrymen. Indeed, if we may so speak, their tastes have been formed by their improved condition, and men have not been slow in turning the circumstance to their own advantage.

Both these trades, like others of a growing character, have not only been a source of profit to their conductors, but they must also have been beneficial to the community where they are situated. Trade and manufacture when successfully carried on, are at all times fruitful of labour according to the requirements of the people. As an instance in the case of the first house, we have the growers of sago in distant regions of the world profitably employed. Then we have the men engaged in the transit of the material, papermakers, printers, lithographers, machinemakers, casemakers, wholesale and retail merchants, each and all of which are reproductive in their turn. Indeed, it requires a very small knowledge of political economy to understand how the social machinery of a country is acted upon by the successful operations of commercial men.

Some few years ago, the fame of Burns and Scott was the means of attracting great numbers of strangers from distant countries to visit the "Land of the mountain and flood." The romantic grandeur of Scotland's wild and rugged scenery, as clothed in the language of the bard and novelist, proved no small blessing, as well as an honour, to the nation. During the last fifteen or twenty years she has drawn the stranger to her shores by the greatness of her material wealth and commercial enterprise. The motive of attraction is certainly less poetical, but it is decidedly more utilitarian, and therefore in keeping with the philosophy of the age. It is quite possible that Scotland may never again be blessed with a Burns or a Scott to charm the world with the magic of their songs and glowing fiction; but in lieu of these bright meteors she will have her enterprising merchants and ingenious mechanics, who will confer upon her a fame no less lasting. Her quaint Doric will give place to a more copious language, and, instead of her vocabulary being the medium for the delivery of old-fashioned thoughts and half civilized ideas, she will hold her place in history both for her ancient fame and her rising greatness.

Paisley, although it would seem to exist in the reflective light of Glasgow, has produced many men whose names are known far from the banks of the *Cart*. Wilson, the ornithologist, was born in the *Seed-hills*. Tannahill, the poet, has immortalized *Canny Seasto*, and the late Professor in the Chair of Humanity in *Auld Reekie* reflected no small honour upon both his country and the place

of his birth. Little more than fifty years ago, a Mr. Clark might have been seen making cotton thread by the aid of a small hand-jenny. That man laid the foundation of a new business in Scotland, and a magnificent fortune for his family. Times are strangely altered since then; the bobbin manufactory of the Messrs. Clark, of Mile-end, in Glasgow, is of itself an extraordinary establishment. The thread factory of the Messrs. Coats, in Paisley, is another example of successful enterprise; we believe this is the largest manufactory of the kind in the United Kingdom.

We have frequently heard it reiterated by habitual grumblers, and the class of people who have unfortunately outlived the age of prosperity, honesty, private and public virtue, that there was no possibility of realising a fortune in these degenerate times.

The fact is, some men's eyes and ears are of as little use to them as their own benumbed energies. There never was a time, either in this or any other country, when both manufacturing and commercial men realised such princely fortunes in so short a space of time; and what is no less true, they have done so by selling their goods at less than one-half of the profits exacted by their predecessors.

It is now many years since we had the starch taken out of us, our relish for the ordinary comforts of life at the present time far exceeds our taste both for the sweets and many of the other artificial appliances. Those people, however, who require the genteel aids of the one, or the saccharine deliciousness of the other, have, in the two establishments we have so imperfectly described, inexhaustible sources of both; and be it remembered that the one stands at a short distance from the murmuring Cart, and the other graces the banks of the sluggish Clyde.

CHAPTER VIII.

SHIRT-MAKING.

DURING the last thirty-five years the industrial ramifications of Glasgow, like the tributary streams to a large river, have fertilised the soil of the surrounding country for many miles. The spirit of competition has kept alive a spirit of enterprise, stimulated commercial ambition, and been the means of calling forth new sources of industry. As the transition from youth to middle age creeps over the generations of men unobserved, so it is with many of the social appliances that spring up among us, if we observe them at all, we only look upon them as matters of course. The man whose memory can dwell retrospectively upon the dawn of Glasgow's commercial greatness, and compare her trading character of forty years ago with her present, will be able to appreciate the wonderful transformation that has been effected in that short space of time. The panorama of her onward course would form a curious and interesting picture. Although the hand of the historian may trace the progress of her commercial expansion, and note the changes that have passed over

the character of her people, however graphic his sketches may be, they will fall short of the reality. We can well remember when the glory of the "plain-stanes" had not quite passed away; when the region of the Piazzas was redolent of tobacco-smoke and the aroma of dried *speldings*; when groups of anxious politicians were wont to discuss the six Acts of Castlereagh and the domestic virtues of the Prince Regent. The elasticity of commercial life in Glasgow, since the time poor half-witted Wilson fluttered in the air at the *fiat* of a reckless Government, could only have existed under an improved order of things. Since 1832, the political atmosphere of Great Britain has gradually cleared; and, since the time Sir R. Peel struck off the chains that shackled the industry of the country, her manufactures and commerce, like pent-up water, have inundated the world.

There is no place in the world where commercial freedom has wrought such changes as it has done in Glasgow. The restless spirit of enterprise pervades all classes of the people. Many of the old branches of industry have been made to assume a new character, in consequence of the talent and energy brought to bear upon them, while new trades and professions are continually springing into life. There is one new branch of industry connected with Glasgow, whose history we deem worthy of a passing notice. Previous to 1840, the shirt trade, as a wholesale branch of British commerce, was not known. It is true that in London and some of the sea-port towns, the low class of sloop-dealers sold common shirts for the use of sailors and the lower orders of the working-classes. These articles were miserably made, and sold in an undressed state. Up to the above date, the use of linen for shirts had been fairly superseded by cotton. A considerable revolution had been effected in mens' under-clothing. Many new articles in hosiery were introduced from time to time, until an entire new classification in this branch of business was introduced. Amid the numerous changes that were continually taking place, both in manufactures and the social appliances of the people, the old domestic system of shirtmaking continued to hold its position as a species of home labour. The time was when the price of making a shirt was regulated by the price paid for a yard of the linen of which it was formed. For instance, if the linen cost three shillings per yard, the making of the shirt was regulated by that sum. When the age of the rail set the commercial world in motion, old habits and social customs were gradually superseded by new ones. In the year 1842, a commercial gentleman belonging to Glasgow, while on one of his journeys to London, ran short of clean linen; he made application to a friend to provide him with what he required. That gentleman took him to a house in one of the old-fashioned streets in the City, within less than five miles from Aldermanbury, where he purchased half-a-dozen ready-made shirts, the price being six shillings each. These under-garments were badly cut, badly made, of inferior material, and very imperfectly dressed. The idea struck the gentleman who made the purchase, that if such inferior goods could be sold in the wholesale market, he very justly conceived that goods of a superior class would be equally as saleable, if not more so.

The above little incident caused an entire revolution in this business, and to it we owe the establishment of one of the largest manufacturing houses in the kingdom in the under-clothing line.

Fourteen years ago, the Messrs. Sinclair & Co. inaugurated the wholesale shirt manufacturing upon a comparatively small scale. The goods made by this house were of the first class, every attention was paid to the various departments under the superintendence of the members of the firm. The cutting was reduced to a system, and care was taken to have the shirts both well sewed and tastefully got-up in the hands of the laundress.

It is a fact worthy of notice in connection with the Glasgow trade, that, during the last forty years, a considerable quantity of work in the cotton business has been done in Ireland. Some few years ago, the firm of R. S. & T. Brown, the sewed-muslin manufacturers in Glasgow, were invited by a committee of ladies in the north of Ireland, to send a portion of work to have it done there. The object these ladies had in view, was to make the new species of labour a means in their hands of converting the Catholic females to the more genteel religion of Protestantism. Whether the policy of proselytising the people through their necessities was a good one or not, we really cannot say. One thing, however, is plain, the females in the North of Ireland got the work, and it mattered little to the Messrs. Brown whether their muslin was sewed by Protestant or Popish fingers. The manner in which this species of work is done by the females in Ireland, proves that there is no incompatibility between popery and embroidery.

We may here notice that, in the early part of the present century, the whole of the sewed-muslin work was done by females in the west of Scotland. A large number of young women and girls were employed in tambouring and other methods of embroidering in Renfrewshire, Ayrshire, and through a considerable part of Wigtonshire. From what we have learned, it would appear that this class of work is better done in Ireland. There seems to be a peculiar adaptability in the Irish females for fine sewing, and they have little trouble in learning it. For several years past, two houses in this business have employed not less than 70,000 females in Ireland in this single branch of industry. These two firms are the largest manufacturers in the embroidery business in the world, both of them have agents through the whole of Ireland.

After the firm of Messrs. Robert Sinclair & Co. had been in business for a short time, this trade was found to increase much more rapidly than they could have anticipated. At the end of two years, these gentlemen found it necessary to open a manufacturing establishment in Londonderry. It would seem that this place offered many advantages for prosecuting the business to Glasgow, and we should imagine that the most prominent of these were those offered by the ready supply of labour. When this place of business was opened in Londonderry, a large number of females, both in the town and surrounding country, were taught the various branches of the trade. For some time the wages paid in Londonderry only amounted to about

500*l.* annually. Small as this sum may appear, it was a matter of no trivial consequence in a place where female labour was solely confined to household work, or occasional employment in the fields.

During the last ten years the field of female labour in Ireland has been gradually extending through the instrumentality of Glasgow houses. At the present time there is scarcely a village or hamlet in the country where the condition of the people has not in some measure been improved by the introduction of sewed-muslin or shirt-making. We have no wish to imply that either of these classes of labour is the best in which females may be employed; but in the absence of others, of a more profitable character, they are not to be despised. At the present time, there are somewhere about fifteen thousand persons engaged in the shirt-making business in Londonderry, the most of them being females. The money paid in wages has increased from five hundred to one hundred thousand pounds annually. The regular disbursement of so large a sum of money in a quiet sequestered country town must have produced a considerable revolution in the social condition of the people. The shirt-making, like any other species of reproductive labour, must necessarily have given birth to several other employments, all of which would tend to improve the circumstances of the people, and increase the material wealth of the town. If the old system of spinning yarn by hand and bleaching the linen by the out-door process had continued in Ireland, it is not likely that Belfast would have been the thriving manufacturing and commercial town it is. In consequence of the manner in which they found their business expanding, they were obliged to call in the assistance of machinery. For the last three years they have employed two hundred sewing machines on their premises in Londonderry; each of these automaton is capable of stitching two hundred yards daily. Shades of all the needle-women from mother Eve to the last of our maiden aunts, what a punctuating power!! A great number of people are under the impression that machinery supersedes manual labour. So it does in certain departments; but it is a fact worthy of notice that in nearly all cases where machinery is introduced, that it is the means of creating new branches of industry. Such has been the case in this instance, although the seam work is done by the machines, female labour has been increased in other departments; and what is of consequence, the work is both of a pleasanter nature and better paid. A girl from twelve to fifteen years of age can manage one of these machines, for which she is paid one shilling a day. The females employed in the higher branches of the business are much better remunerated for their labour. Many in this class make from sixteen to twenty shillings a week. There is no pining in misery among these people. No stitch, stitching, from early morn to gloomy eve, with their minds feeding upon their own sorrows. No struggling between hope and fear that the flickering lamp of life may burn a little longer.

From what we know of the evils of needleism, particularly in its connection with slop work, we heartily wish the whole system was abolished. At this moment there are thousands of females dragging

out their existence under the harrows of this mind and body crushing labour. In our idea it would be better that all the men in the world should pass through it shirtless, than such an amount of silent suffering should exist as is now endured in all our large towns in connection with this branch of national industry.

The surprising increase which has taken place in our population during the last thirty years, has naturally demanded many new arrangements in the social appliances of the people. The lady who first inserted a linen breast, and added linen wristbands and collar to a cotton shirt, was certainly guilty of no serious act of ingenuity; nevertheless, she was one of the revolutionisers of the age. The time is not long gone by when the breast of a man's shirt stamped the class he belonged to; and the starch of the Briton was almost as good a sumptuary distinction as the Toga of the Roman. It might naturally have been supposed that the almost universal adoption of cotton for shirting would have been the means of destroying the linen business in Ireland. Such, however, has not been the case; instead of which, we have reason to believe that there is decidedly more of this material consumed than there was thirty years ago.

The linen breast is one of the most useful and justifiable deceptions ever played off upon the sons of Adam. The cotton shirt itself is a decided improvement over the linen. Being a better conductor of heat, it allows more freedom for perspiration, and is, therefore, conducive to health and personal cleanliness, which is not the case with linen. We believe the sanitary character of cotton had very little to do with its successful rivalry over linen. The idea of equal respectability at one third of the cost was quite sufficient to command the patronage of a utilitarian and bargain-loving public. In our opinion, nothing can furnish a better proof of the great importance of the shirt revolution in our social system than the fact, that every man in our towns who is able to earn twelve shillings a week, is almost sure to have his breast ornamented with a dressed inside case.

In 1855, the firm of Sinclair & Co. merged into that of Tillie & Henderson. In consequence of this change, or rather re-arrangement, the new establishment became by far the largest in the line in existence. In the meantime, the manner in which their business is managed, enables them to compete fairly with other houses in the trade, and at the same time pay a reasonable price for their labour.

In consequence of the rapid manner in which the business of this firm has increased during the last three or four years, the partners have been obliged to erect a new factory for the accommodation of their work-people. This establishment is complete in all its arrangements, and is capable of accommodating upwards of a thousand work-people. It is also fitted up with machinery, and all the modern appliances necessary for such a business. Some little idea of the magnitude of this shirt and collar-making establishment may be formed, when it is known that the firm could supply the whole of the British army with under clothing at a few days' notice! When the establishment is in full working order, five hundred dozen of shirts and fifty gross of collars can be turned out daily! If some of our

dear departed old grandmothers could have this fact communicated to them, what a stare of ghostly incredulity would follow the announcement! When this business was opened up in London, the old firm would have thought that the world was going well with them if they could have managed to have kept up the steam of fifty dozen weekly.

The resources of a business like this cannot be called into existence in a few months, even with the greatest command of capital. Like all other establishments in which a new branch of industry has been inaugurated, it would necessarily require time to expand with the increasing wants of the public. The exigencies of business can only be learned by time, and observing the varying circumstances with which it may be surrounded. We are aware that this trade has been brought to its present state of efficiency by strict application, economy in management, and a thorough surveillance over all its departments. There would seem to be three partners in the firm, each of whom holds a separate position, and is held responsible for the proper management of the charge committed to his care. Mr. Tillie has charge of the manufacturing department in Londonderry. Mr. Henderson superintends the wholesale department for the home trade in Glasgow, and Mr. R. Sinclair manages the export business in Aldermanbury, in London. Although each of these gentlemen are perfectly *au fait* to the business in their own departments, we believe that if all or any of them were transplanted, they would be quite at sea.

The Londonderry branch of this business is a very important one. We should say that the two branches of the trade demanding care and economy in the highest degree, are those of the cutting and finishing. In an establishment where from two to three thousand yards of cloth are being cut up daily, it must be evident that a small loss upon a single shirt in the cutting would amount to a serious sum if that loss was repeated upon the entire work of a day!

The manner in which linen is got-up by the wholesale shirt manufacturer affords good proof of the pains bestowed on this department. In the washing and bleaching, purity of colour has been attained in the highest possible degree. And in dressing, the laundress puts a finish on the goods that pass through her hands quite artistic. When *Beau Brummell* was leading the world of fashion, and training the laundry-maids of fifty years ago in the stiff science of starch, he had little idea that the business of dressing shirt-breasts and collars would ever have obtained such a general standard of perfection!

It would be a difficult matter to calculate the benefit conferred upon the north of Ireland, even by this single firm. We have no wish to give these gentlemen credit for anything in the shape of philanthropy in establishing their manufactory in Ireland; on the contrary, we are satisfied that they were entirely actuated by commercial motives. It is a matter of no consequence what their motives were, it is sufficient for us to know that the application of their capital and energy has produced a real good both to themselves and the inhabitants of the Maiden City. The more the interests of the people are identified with commercial pursuits, the less time and inclination will they have to attend to the war of creeds. The produce of the labour afforded in

this branch of business is the means of contributing to the comfort and happiness of numerous families in a place where labour was, only recently, both scarce and ill-paid.

If the shirt-making and sewed-muslin * branches of business should continue to progress during the ensuing ten years upon anything like the same ratio they have done for the last, they will produce no small revolution in the social condition of the people in the north of Ireland. In conclusion, we may mention that many thousands of the shirts finished by the delicate hands of the fair maids of Derry, are continually finding their way to the land of gold and *kangaroos*.

CHAPTER IX.

GENERAL REMARKS.

It must be a long time since the golden age, when the lions and lambs of humanity lived together in social harmony, and when Orpheus made inanimate things dance to the music of his Pandian-reed! If these things were the fruits of the age of gold, that precious metal must have lost its magic influence over the human family long, long ago. It is true that gold is yet calculated to make men do strange acts, and its attainment in many cases is the sole aspiration of their whole lives. There is another metal, however, whose power over the moral and social condition of men is greater than even that of gold. According to our notions of the pure and beautiful, gold is certainly a very pretty thing to handle and look at, (which are really all the uses we can make of it); but we can assure our readers it would make a most miserable spade, pickaxe, or even a common sewing-needle! Since the time Julius Cæsar found the *kelts* of Great Britain roving through her interminable forests in savage independence, her cross-bred inhabitants have passed through many strange ages. But it has fallen to the lot of the present generation to live in a veritable age of iron!

In this chapter we will be able to show how Scotland has obtained her commercial status, and how Glasgow burst through the barriers of her old social conventionalisms, and has taken her stand as a leader in the commercial world.

The west of Scotland is remarkably rich in mineral wealth; her beds of excellent coal would almost appear to be inexhaustible. She is also surrounded with an immense strata of both iron and lime. Up to within the last sixty years, these great sources of national wealth were allowed to lie quietly in their geological beds. The quantity of coals used in Glasgow, even at the beginning of the present century, must have been comparatively small, and as to the iron, nobody thought of working it. According to Dr. Strang's report in the

* We are sorry that the Glasgow firm, lately employing the greatest number of females in this business, has now yielded up its commercial ghost, after a career of eighteen years. It is a known fact, that D. & J. M'Donald, before their failure, furnished employment in the embroidery and lace business for 40,000 females. And if their ambition had not been checked, they would have added to that number very considerably, as they had just commenced the shirt trade upon a gigantic scale.

Statistical Society's Journal of 1855, it would appear that the quantity of coals brought into Glasgow in 1831, was only 560,000 tons, and that 120,000 of these were for export, thereby leaving only 440,000 both for manufacturing and domestic purposes. It must be borne in mind too, that at that date, machinery and the application of steam to mechanical power was in common use in all the manufacturing establishments in the town.

The inhabitants on the banks of the Clyde in 1812, little dreamed of the revolutionising character of the tiny Comet as she made her voyages up and down the river, with her small funnel leaving its smoky clouds to lose themselves in the pure atmosphere. Up to 1820, there were not a dozen of river steamers built on the Clyde. The navigation of the river, so late as 1812, was little better than that of an ordinary canal, and in 1820, the depth of water would only admit vessels drawing eight feet. At the present time vessels of above two thousand tons burthen can come up to the harbour. We well remember, when a barque of three hundred tons came up to Glasgow, in 1835. The sight of so large a ship was then such a novelty that everybody went to see her as she lay at her berth on the north side of the river. The harbour was then something like the village of Helensburgh—it had only one side. The following figures, which we have obtained from Dr. Strang's Statistics of Social Progress in Glasgow, will illustrate the surprising manner in which the trade of the town has expanded during the present century:—In the year 1800, the revenue of the River Trust was 3,319*l.* 16*s.* 1*d.*, and in 1854, it amounted to 86,580*l.* 5*s.* 11*d.* The same authority gives the number of steamboats built on the Clyde in 1821, to have been six, with a tonnage of 790, and in 1853, the number of steamers built had increased to 86, with a tonnage of 61,044. The custom duties in 1801, amounted to 469*l.* 13*s.* 6½*d.*; a great portion of this sum would then be paid upon rum and tobacco, as these were the two principal articles of import to Glasgow in those days. In the year 1855, her Majesty's revenue-officers received the sum of 668,556*l.* 9*s.* 4*d.* in the shape of custom dues. If the collector of 1821 could be allowed to put on his glasses and see the above figures, he would be sure to take them off two or three times in order to wipe them clean, for no sensible ghost, with the experience of forty years ago, could believe in such a difference, even with ocular demonstration.

The number of river steamboats built on the Clyde, since the year 1821, is 446. From 1835 up to about 1847, the shipwrights on the Clyde were very successful in business; but it may be said that the introduction of iron shipbuilding produced a new era in the whole commercial character of the town. We believe there is no instance on record where the introduction of one branch of industry has been the cause of such a sudden expansion of commerce as has been caused by this new source of national wealth and power. A gentleman of the name of Nelson built a small river steamer of iron in 1830; he had her built on the banks of the canal, between Port-Dundas and Maryhill, and when finished, had her conveyed down to the river upon a machine. This little hard-ribbed boat caused a world of specula-

tion at the time, and the wiseacres were not slow in consigning her to Davy Jones' locker. But the question of the safety, utility, and economy of iron steamers, was fairly solved by the enterprising firm of Todd & Macgregor. In 1839, that firm launched the Royal Sovereign. This vessel was made to breast the ocean-wave in the Irish Sea. The Royal George followed her in six months. In 1840, this firm solved the problem of the practicability of iron deep-sea-going vessels. The Princess Royal came from their hands, in all the strength, majesty, and beauty of a new creation. There never was a vessel that sailed from the port of Glasgow more indebted to her builders, and, in the end, more profitable to her proprietors. It will be in the remembrance of many that this magnificent ship met an inglorious end, having foundered, when old ocean was at rest, off the coast of Wigtonshire. Although several iron vessels had by this time proved their seaworthiness between the ports of Glasgow and Liverpool, a passage across the Atlantic was looked upon as a thing quite out of the question; nobody was going to be so truly insane as to trust either life or property in an iron ship so far from *terra firma*. The above firm had dreamy notions that the thing was practicable. Engineers and other scientific men built up a series of hypothetical difficulties, which seemed insurmountable to everybody who thought as they thought. In 1850, the same firm formed a deep-sea-going ship of a number of plates of iron; they baptised her with the name of the Western Metropolis, and sent her to the new world. She went and came, and went again, and most gallantly did she do her work—no vessel ever breasted the billows of the Atlantic with more strength and buoyancy. Since the *City of Glasgow* set the question of deep-sea-going vessels at rest, the iron-ribbed leviathans of Great Britain unfurl their canvas, and sound their whistles, on every sea where old Neptune wields his trident.

In 1853-4, the number of vessels contracted for on the Clyde, by thirty-two shipbuilders, was no less than 266, including steam and sailing-vessels, with an aggregate tonnage of 168,000 tons, with engines of 29,000 horse-power. What number of vessels there may now be building on the Clyde, we are not able to say; but from the everlasting din of hammers, which sound upon the ear for miles along the banks of the river, one would imagine that the people were building iron vessels for all the world. There can be no doubt that the extraordinary expansion of manufactures and commerce in Glasgow, during the last ten years, is mainly owing to this branch of industry. People may talk of the gold mines of California and Australia, in all the admiration of real lovers of that precious metal, but, we are satisfied, that the diggings at home among our black diamonds and black-band are more valuable than even those mines.

The west of Scotland is immensely rich in iron; this metal would appear to run in a strata from the neighbourhood of Ayr, in an oblique manner right through the country to the foot of the Ochil-hills, where it comes in contact with the ragstone of that formation. Although this valuable material has existed in such abundance for ages beyond the records of time, it was not until very lately that men came to a

knowledge of its real worth. The discoveries of Watt and others, who called forth the genii of steam, seem to have loosened men's minds from the thralldom of ignorance, and set the whole world in motion. The development of the magic power of steam would appear to have called forth new energies; or otherwise has been the means of letting loose those latent powers of the mind that heretofore awaited some magician to break the spell.

So recently as the year 1830, there were only sixteen blast-furnaces around Glasgow, each producing an average of 2,500 tons of pig-iron per annum, or a total of 40,000 tons. From this time upward, there would appear to have been a gradual increase of the business, and when we arrive at the year 1854, we find that there were no less than 116 blast-furnaces at work, the majority of which were connected with the city, and each producing an average of 6,500 tons, or a total of 754,000 tons. According to Dr. Strang's statement, the average price of iron during 1854 was 79s. 8d. per ton. The gross value, therefore, of this species of industry, would amount to the enormous sum of 3,000,000*l.* sterling. The same authority, speaking of the value of malleable-iron manufactured in Scotland, which was not attempted in this division of the country until 1839, when it must then have been very small. But, in 1845, the quantity produced was estimated at no less than 35,000 tons, and during 1854, the manufacture of this article had reached 110,000 tons, and he now estimates the annual value of malleable-iron in Scotland at 1,110,000*l.*, which is a most unprecedented increase.

It would appear, from the report of Mr. Williams, the Inspector of Mines for Scotland, in 1854, that the quantity of coals produced in the west of Scotland that year amounted to 6,448,005 tons, which, being 7s. 6d. per ton, will give a sum-total of 2,418,000*l.* sterling. The value of pig-iron is estimated at 2,051,140*l.*, and the malleable-iron at 403,716*l.* These two sources of industry will, therefore, give a sum-total of 4,872,856*l.* The above figures are not a little startling, when we cast our eyes back over the page of Scottish history. In 1790, there were not more than 1,500,000 inhabitants in the whole kingdom, and at that time nearly the whole of the population were employed in tilling the soil upon a very rude and unprofitable system. We should say, that, at the present time, the counties of Lanark, Renfrew, and Ayr, can boast of more real wealth than was available in the whole kingdom little more than sixty years ago.

We remember, when in Glasgow some few months ago, of seeing a report of a speech of the Lord Provost, at a meeting in Kilmarnock, wherein he stated that the annual rental of Glasgow amounted to 13,000,000*l.** To us that sum seems perfectly incredible. If that statement was founded on fact, the material wealth of Glasgow must be great indeed. From what we have been able to learn, the cotton trade in Glasgow has not made much progress during the last twenty years, however this may be accounted for. The generality of the fabrics are of a fine texture—muslins being a leading article. From

* There must have been some mistake in reporting the above speech.

thirty to forty years ago, the Glasgow people were far behind Manchester in printing; of late years, a considerable revolution has been effected in this branch of industry. From thirty-five to forty years ago, one of the staple trades in Glasgow was the manufacturing of gingham. It is really curious to observe how certain branches of trade will move from one locality to another. We believe that there are now being manufactured in Carlisle no less than 400,000 pieces of this class of goods annually; and we know one house in Glasgow that takes upon an average 70,000 pieces.

The number of spindles at work in Glasgow and neighbourhood, in 1850, was said to be 1,683,093, and the amount of raw material consumed was 45,000,000 lbs., or 120,000 bales. In the year 1854, it would appear that there had been a considerable decrease in the consumption, as the number of bales had fallen to 1,900 bales weekly.

In 1850, it is said, that the daily average produce of cloth from 23,564 power-looms, was 625,000 yards. This quantity, at sight, looks very great, but it must be comparatively small to the quantity produced by the looms in Lancashire. From the above statement, it is evident, that if Glasgow were obliged to fall back upon the manufacturing position she held thirty-five years ago, one half of her population would have to find employment elsewhere. Under the present aspect of things in Glasgow, and the settled state of our foreign and social condition, her destiny, in the meantime, is to march onward.

Will social progress continue without end? This is a question that must, of necessity, force itself upon the consideration of every thinking mind. If we reason from analogy, the bright Utopian notion of continual progress for any single nation will prove an idle dream. The cross-bred Saxon race, of which Great Britain is composed, with its iron will, indomitable courage, bold enterprise, and restless ambition, can have no immunity from the mutations which the laws of nature are continually producing. All the different families of mankind that have preceded them on the great stage of the world have had their youth, age, and decay; and there can be little doubt that we too will follow in their wake. It certainly affords a melancholy reflection, to think that our glorious and magnificent social system, with all its splendid attributes should be subject to decay. But when we consider that perfection lies beyond the drop-scene of death, resignation to the eternal decrees of Providence becomes a duty to which all must submit. If men act upon the impulses of their more exalted nature, in a spirit of charity towards each other, they are then carrying out the will of the great Lawgiver, and they must leave the world to the guidance of its own unerring laws. A thousand years hence, and the beautiful estuary of the Clyde, with all its magnificent scenery, may be converted into a "dismal swamp" by the silent workings of nature, and the mighty Queen of the West may lie buried beneath a mound of earth! If such a revolution should steal over the fair face of the west, it would afford no greater proof of the wonderful power of change, than what we see daily taking place before our eyes. What we are about relating will be found to be the astonishing results of our social progress; but it must be borne in mind that the same ele-

ments that produce maturity are also the means of producing decay. The following statistical notice may be of some little interest to such of our readers who have not paid much attention to the question of national progress. During the reign of Charles II., the population of London did not exceed half a million of souls. In 1685, Manchester contained 3,000 inhabitants; Bristol was then next to London in the number of her population, which was 20,000. Leeds, with a few miserable wooden erections, could then boast of 7,000. Sheffield was then in the wake of Rotherham, with a population of 4,000. Birmingham and Liverpool were blessed with 8,000 inhabitants between them. In the above year, the carriage of goods from London to Exeter was done at the moderate rate of 12*l.* a ton! If we hold on by the chariot-wheels of time for the short space of 136 years, we will be astonished at the wonderful transformations that have been effected in that small span of the nation's existence. In 1821, London had swelled her population into 1,400,000. Leeds, Sheffield, Birmingham, Manchester, and Liverpool, counted their inhabitants by six figures. In 1685, Bradford, in Wilts, had a population of 10,023; in 1821, this town was being reduced to a mere village, which character she now retains. In 1821, the population of Bradford, in Yorkshire, was 10,528; since that time, the inhabitants of this go-a-head seat of our national industry, have multiplied themselves into a family of 160,000. Two hundred years ago, there were not more than from 4,000 to 5,000 inhabitants in Glasgow; in the year 1821, her population had increased to 150,000. Since that date, she has been steadily adding between 2,000 and 3,000 human beings to her population annually.

During the last thirty-six years, sixty new branches of industry have been added to Glasgow, while many of those in existence have increased more than a hundredfold. Mr. Love, bookseller, (principally periodicals,) in St Enoch's-square, commenced, about twenty years ago, in Nelson-street. So recently as 1842, this gentleman's weekly parcel from London rarely amounted to a hundred weight. In 1857, his weekly parcel from the same place had increased to between four and five tons, fifteen hundred-weight of which is made up of the *London Journal* alone. It is worthy of notice to remark, that this gentleman is the largest dealer in periodicals out of London, with the single exception of Mr. Abel Heywood, in Manchester. These two men commenced their commercial career much about the same time. Their success in business has been the result of zeal and untiring industry, combined with strict business habits, and no small share of mental energy. Both have attained to an eminence hitherto unknown in the profession.

We have already noticed the photographic art, and dwelt upon its importance, both artistically and commercially, in our sketches of London. To us it seems as if it were only yesterday since photography was first introduced into Glasgow; and we remember well how its professors struggled with the difficulties with which it was surrounded. The public had, evidently, a taste for pictorial representation; but the villainous *ticket-of-leave* expression of the mouths and eyes of the early photographic portraits, made even the most unartistic amateurs recoil from their own burglarious shadows. Since then the genius of

invention has remedied these facial defects, and the camera and the solar rays now combine to render true copies of all objects submitted to their influence.

At the present time, there are a number of gentlemen engaged in this profession in Glasgow, who bring no mean artistic qualifications to bear upon the business; indeed, many of them are artists either in oil painting or water colours.

During our last visit to the City, we had the pleasure of seeing the establishment of Mr. James Eadie, 249, Argyle-street. This gentleman's studio is well worth a visit by all lovers of art. His collection of Scotch scenery, which includes many of the old baronial halls and lordly mansions, are splendid representations, and embrace all that is beautiful in artistic delineation.

Our principal motive, however, in noticing this gentleman's establishment, is in consequence of a new improvement he has discovered in shading his pictures. The tinted back-ground, in various degrees of shade, is now common in photographic pictures. The system introduced by this gentleman is of a very different character from that generally in use. The class of people who understand the blending of light and shade, cannot fail to admire the peculiar style in which Rembrandt surrounded his portraits with haloes of light creeping away into utter darkness. Mr. Eadie has happily caught this method of shading his portraits; the important feature of which is to give a decided character to a picture, by making the more salient parts tell with true effect.

This gentleman has also discovered a method of taking portraits without any of the parts being reversed. Thus, for instance—if a man's nose should have an inclination to the right, and his portrait produced by the ordinary application of the camera, the twist of the nose would be set to the left-about! It may be argued that if a man's nose is one-sided, it matters little which of the cardinal points it inclines to. Our opinion is, however, that the representation should agree with the original. The ordinary camera also acts the part of a conjuror, by transferring gentlemen's watches from the left-hand to the right-hand waistcoat pocket, or *vice versa*; this, too, is obviated by the non-reversible camera.

In our previous notice of this business, we omitted to mention a new application of the camera, which affords another proof of its truly wonderful character. Some little time ago we had occasion to visit the wholesale optical warehouse of Mr. Woog Javal, Broad-street-buildings, London, where we were both amused and surprised, by viewing a series of photographic pictures. In the first place, we were shown a number of small oblong pieces of flat glass, each of which were labelled near one end; on the centre of each of these a small circle of about $3\frac{1}{8}$ was marked, and in the centre of this circle a dot about the size of a pin's-head could be discovered. After the gentleman had exhibited these apparently useless things, he placed one of them in the field of vision under a microscope, when lo, and behold! a group of nine gentlemen, each of which was a beautiful portrait, met our astonished gaze. These little bits of glass contained a series of

delightful pictures, embracing an immense variety of subjects; and, though the largest objects represented could not equal a pin's-point upon the circular discs, the instrument brought them up to the same size as they would have appeared in the stereoscope. Nothing could afford a better proof of the astonishing fidelity of the camera, than the fact of every line of the subjects being represented, with as much accuracy, as if they occupied the space the lens gave them to our view. It is, perhaps, well that men have not microscopic eyes; for although it may be instructive to them to get a peep into the arcana of creation occasionally, it strikes us forcibly, that if it were otherwise, we should feel ourselves continually in the society of monsters. Where life begins, or where it ends, none can tell; one thing, however, is certain, that the microscope has lately opened up a volume of the history of the Almighty's power to enquiring man. The lesson we should receive from these wonders should teach us that God alone is great; and that in his creation there is really nothing little, nor anything large, the infusoriæ and the elephant each live to die, and die that they may live!!

By comparing the various trades and professions in Glasgow at the above date with those that are in existence at the present time, we will be furnished with abundant evidence of the altered taste and condition of the people. In 1831, there were 9 architects, there are now 33. In the former date, there were 26 confectioners, these have increased to 143. And it may be noticed, that the Messrs. Wotherspoon do more business than the whole trade in Scotland did thirty years ago. In 1821, there was not one outfitting establishment in all Glasgow, at the present time, there are not less than 100, and some of these are upon a very large scale. The number of merchant tailors, in 1821, was 40, these have increased to 240. In 1821, there was only one manufacturing chemist in Glasgow, at the present time there are 55. At the above date, there was not a single carpet manufacturer in the town, there are now 11. The Messrs. Templeton employ from 400 to 500 workmen. Many of the goods made by this firm are of the highest order. Their patent carpets and hearth-rugs are splendid in make, design, and material. John Lyle & Co. also do a large business in manufacturing patent Axminster carpets and rugs. It is only thirty years ago, since the Port-Eglinton Spinning Company first introduced this business into Glasgow. The brokers in furniture and old clothes, in 1821, numbered 11; these fragmentary dealers seem to have kept pace with the increasing demands of the people. These two trades have been classified, and now form two distinct branches. In reference to the furniture business, we may mention that there is one gentleman now in the trade whose stock is of more value than that of all the furniture brokers in Scotland from 30 to 40 years ago. Mr. Thomas Smith, the proprietor of this gigantic concern, occupies the mansion, in Great Clyde-street, that was formerly the property of the once celebrated Mr. Dreghorn, a gentleman who was long known in Glasgow in consequence of his strange eccentricities of character, some of which were not of the most amiable nature. Mr. D. was a bachelor, and possessed considerable wealth, both in landed and personal property. Notwithstanding

his thorough independence in pecuniary matters, his mind was seized with the strange hallucination that he would die in poverty; and, in order to avert such a calamity, he committed suicide by shooting himself! The proprietor of this establishment furnishes, in his person, another of those examples of what can be effected by a combination of fortunate circumstances, energy, judgment, industry, and close application to business, by having gradually ascended the commercial ladder, from the lowest step to the summit, in his profession.

In 1821, there were no funeral undertakers in Glasgow, at the present time there are 11, who are both able and willing to do the last honours to the inhabitants as fast as they pop off the hooks of life. At the above date, there were only 4 dispensers of drugs, these useful members of society have increased to 52. Glasgow was then only blessed with 5 accommodating relations, who would advance loans upon personal property, there are now 60. The letter-press printers numbered 12 in 1821, there are now 74 gentlemen who live by making typographical impressions. In the same year, there were 4 broad-sheets printed in the Western Metropolis, these have been conjoined into 14, 3 of which are daily. At the above date, there was not a single private hotel in the town, there are now above 20 of these establishments, some of which are fitted up in a style of eastern magnificence. The number of glass manufacturers, in 1821, was 6, there are now 64. The only species of earthenware made in Glasgow, at that date, was of the most primitive character, and we believe there was then only one pottery; there are now 8 large establishments, some of which produce first-class ware. The number of jewellers, in 1821, was 18, and the great majority of these were either working-men, who jobbed in their own houses, or peddling hardware dealers. If we were to notice the increase in the number of drapers' shops since the above date, it would by no means convey an idea of the real increase in the business. There are at least 12 houses in this trade now in Glasgow, that do considerably more business than was done in the whole of Scotland 40 years ago. The above statement will furnish us with one peculiar fact, namely, that the wants of the people have increased even faster than the population, and it will also be seen that these wants are nearly all of an artificial nature.

Less than forty years ago, the first-class retail shops in Glasgow, were lighted by narrow projecting bow-windows. The manner in which some of these places were fitted up internally, was generally characterised by plainness and simplicity; in fact, some of them were homely with the fellowship of dirt! Many of the shopkeepers of those days, kept a little of everything, and if age was any advantage to their wares, their customers were sure to be well suited.

The modern commercial philosophy of "small profits and quick returns", was too abstruse a question in social economy to be understood so far back in the infancy of trade. The warehouse of Messrs. James & William Campbell, stood alone in its glory for many years. About twenty years ago, a perceptible change was creeping over the business part of the town—the old shop fronts were being acted upon. A window was amputated in one place, and a gouty hanging storey in

another. Where surgical operations could not be made available to benefit the health and appearance, the destroyer stepped in, and a modern building was erected by men with modern notions, on the old site. The new tariff of the late Sir Robert Peel did more for the improvement and decoration of places of business in Glasgow, than it is possible for us to describe. Instead of the retail shops being small, ill-ventilated, dark, and dirty, with stupid, stolid-looking fellows behind their counters, the town is now full of commercial palaces, in which there is no expense spared, either in the internal or external arrangements; while the attendants are not only *au fait* to their business, but what is of equal importance, they have learned the art and practice of civility. Of late years, the sale of *cabbage* and *courtesy* have been found to be compatible.

The material prosperity of a town is the result of private enterprise, well-directed industry, and the prudent application of capital to manufacturing or commercial pursuits. From what has been stated in these pages, some idea may be formed of what reproductive labour has done for Glasgow. Had her people been merely dealers and consumers instead of producers, the river Clyde would yet be overflowing her banks, and the mineral treasures that lie beneath the soil, would have been allowed to have remained undisturbed in the dark caverns of the earth.

The gulf stream of commercial prosperity, that has carried the population onward with extraordinary rapidity during the last twenty-five years, has produced many changes in the social habits of the people. Men cannot live among riches without being influenced by them, either directly or indirectly. We know no town in the United Kingdom, where the trading community have undergone such a signal change in their manners and habits as that body has done in Glasgow. A love of finery, and an assumption of gentility, pervades a large portion of society. People who have large sums of money passing through their hands in the way of business, frequently forget the liabilities of their position. One year's success in trade—nay, a single transaction, may completely change a man's position in society. Under such circumstances we know how apt the majority of men are to forget the past, and look forward to the future with a blind confidence. We believe it to be a fact, that there is no place in the world where there is a greater struggle among the trading community to rise on the social scale than what exists in Glasgow at the present time. Redpathism has long had a hold of the feelings of a large number of the commercial men of this country. We have no hesitation in saying, that the great vice of the age among commercial men, is in allowing their wants to overstep their means. Social position, and assumption of grade, seems to be the sole object of a large number of men in business, and everything connected with their social appliances and domestic arrangements, are conducted upon a scale of aristocratic magnificence. During the last twenty years, there has been an insane spirit of rivalry among a large number of the traders in Glasgow, in the furniture, ornamentation, and decorations of their private establishments. The interiors of the dwellings of this class of people are

more like the palaces of Eastern kings, than the homes of plain, honest, plodding tradesmen. It would signify little to Mrs M'Farlane having a display of magnificent furniture, costly pictures, works of art, and articles of *virtu*, unless her friends were frequently invited to see them. The consequence is, that her husband's hospitality is brought up to the standard of their social appearance. In whatever state of society a man may be placed, it is necessary that there should be a congruity in his arrangements, it would therefore be out of place for a man with a family to have his house full of costly furniture, unless his wife and children were polished into keeping with the rest of his domestic appliances. Whether a tradesman regulates his expenses at one thousand or ten thousand a year, it is a matter of indifference to the community, as long as the profits will enable him to do the one or the other. But it becomes a very different matter, if he should live at the rate of ten hundred a year, when his income is not more than six hundred! The failures that are continually occurring among commercial men, and the reckless dishonesty by which many of them are characterised, prove but too plainly the general laxity of commercial morality.

It has long been a generally received opinion, that Scotchmen are more prudent and cautious in their business transactions than their neighbours south of the Tweed. We have no doubt but this was true sixty or seventy years ago, when money was of a much greater value in the country than what it is now. At that time their little trading speculations were almost entirely confined to themselves. Their notions of men and things have passed through a considerable change of late, and now, instead of being ruled by over-caution, we know of no class of men who venture more freely into the dangerous fields of commercial speculation. If this species of enterprise has its dark side, it has also a splendid reverse. Had it not been for the daring of Glasgow men, she would not now hold her present proud position among the first commercial towns in the world.

Every class of society has its own peculiar vices, and although many of the traders in Glasgow suffer from the sin of gentility, on the whole, we are aware that the manners and habits of the middle classes have been greatly improved of late years.

A high state of civilisation is, or should be, characterised by two circumstances peculiar to people of refined taste: the one is cleanliness in their persons and domestic arrangements, and the other is a knowledge of the properties and combinations of food, or the science of cooking. The improvement of the sanitary condition of Glasgow affords an excellent proof of her social advancement. Considerably less than thirty years ago, Glasgow was in a sorry condition, so far as her sanitary regulations were concerned. Up to the year 1838, typhus fever, and several of those disorders that arise from filth and ill-ventilated dwellings, were continually working havoc among the miserable population that were pent up in the Winds, Vennels, High-street, Bridge-gate, Saltmarket, and their loathsome tributaries. The savage life in some of these quarters was at one time almost without a parallel. The application of water, and the vigilant surveillance of

the police, with a stringent lodging-house regulation, have produced a salutary change in these once infamous purlieus.

In examining Dr Strang's "Social and Economical Statistics of Glasgow, for 1855," we find that the population was then daily supplied with 15,300,000 gallons of water. This is certainly a large quantity of an element so necessary to the health and comfort of the people. In this matter the inhabitants of Glasgow are placed in a much more favourable condition than those of London, who with a population of six times the number, have less than three times the quantity of water!

During the present century, the monster evil with which Scotland has had to contend, has been the inordinate love of ardent spirits, among all classes of the people, but more particularly in the lower orders. It would be a difficult matter to estimate the serious evils the love of whisky has entailed upon a large portion of the people, by lowering the standard of their morals, and subduing their feelings of self-respect.

Many attempts have been made from time to time to restrain the sale of intoxicating liquors within narrower bounds, both by legislative enactments and municipal regulations. The last attempt at legislation upon this question of national morality and personal freedom, was in 1855, when the Public-house Act of Forbes M'Kenzie was passed into a law. Some of the provisions of this Act were much called for: such, for instance, as the closing up the mere spirit cellars on the Sunday, and confining the tavern hours within the rational limits of eleven o'clock p.m.

We have often noticed that those classes of men who take upon themselves the self-imposed duty of legislating for the moral and religious wants of the people, frequently allow their own want of discretion to carry them too far. There can be no question of the desirability of temperance among all classes of the community, and if all men could be persuaded to become teetotal, humanity would be freed from much misery and many grievous evils under which it now labours. We are convinced, however, that it is a sorry mistake to think that these results can be produced by coercive measures. Up to this time the Act has produced much discontent among a large portion of the people. The class of people in Scotland who are able to regulate their conduct upon rational principles are subject to the same degrading rules and regulations with those unfortunate members of society who are destitute of the power to control their unhappy desires. The consequence is, that the prudent and well-conducted members of society are not only made to bear the stigma of the law, but they are also obliged to suffer from its prohibitions. If the operations of this puritanical patch-work Act ended here, we should have passed it without notice; unfortunately, however, it has revived a trade that has been little known in Scotland during the last forty years—we mean the sale of spirits without license. The dissipation of the cellar or the tavern is bad enough, but the sly and stealthy intemperance of the shebeen or the mock-clubhouse is decidedly more mischievous. We know it to be a fact, that there is not a single

district in Glasgow that is not ornamented with numbers of these dens, where the people can have whisky either on Sundays or week days, as long as they are able to drink and pay! This modern contraband business is not confined to the towns in Scotland. We speak from authority, when we affirm that in many places, this business is carried on in a friendly accomodating way in quiet country farm-houses!! This trade is decidedly more demoralising to the people than the regular business. Like all secret institutions, the dangerous operations of this system are carried on in the dark. The dealers are not more interested in evading an exposure than many of their customers, and the stringency of the law is a means of quieting men's consciences, who otherwise would be good and loyal subjects.

We find, on referring to the report of Mr. Smart, superintendent of police, that the number of persons convicted for selling without a license, in 1853, was 21, but up to September, in 1855, the number had swelled to 226! In 1853, the number of imprisonments for the non-payment of fines, was 3, but before the end of 1855, 35 had suffered different periods of confinement. We are personally acquainted with one man who went into this business in consequence of being deprived of his license, as he considered unjustly. This person paid no less than between £80 and £90 at several times. Whatever the more thoughtful members of society may think of this business, we are satisfied that a very large portion of the people can see nothing wrong in it; on the contrary, we know that there are not a few who look upon the business to be as legitimate as any other. In the whole course of our experience, we never knew an instance where straight-laced morality was forced upon the people, that the attempt did not end in a total failure; and we think it requires no prophet to foresee the end of the M'Kenzie Act, in a very different way from that contemplated by its supporters.

Although the keepers of clubs are being fined and imprisoned almost daily, the authorities have found it impossible to suppress them. The vigilance and determination of the people in this business, in many instances, sets the cunning espionage of the police at defiance, and instead of their number decreasing they are daily growing more numerous.

The duties of the police in Glasgow, are, perhaps, more onerous than in any other town in the United Kingdom. The numerous low dens in the purlieus of the city and suburbs are continually infested with a savage and brutal horde of burglars, who carry on their operations in the most daring manner. There are also a numerous brood of young thieves, many of whom prowl about the town both day and night with the stealth of cats, in consequence of their enjoying the luxury of bare feet. There is yet another grievous sore spot upon the social system in Glasgow, that exists in the shape of a moral gangreen. We allude to the hordes of unfortunate females who continually infest the public thoroughfares. Many of these poor creatures are sunk in the lowest depths of human degradation. Mr. Smart accounts for 1,200 professional females in Glasgow, but this is far short of the actual number. We may mention, too, that a large

number of mill and warehouse girls are continually undergoing the process of probation in this truly degrading calling. The rage for fine clothing is said to be the prevailing cause of sending numbers of these girls into the streets. When once the poor creatures have passed the barriers of virtuous society, in nineteen cases out of twenty they are irretrievably lost.

There is one crime in Glasgow that is characterised by a peculiar heartlessness; we allude to that of child stripping. In 1855, there were nine convictions for this offence; but as the crime is generally protected by the secret circumstances under which it is perpetrated, the above number would not be a tithe of those undetected.

Like all other large seats of industry Glasgow affords a living to a numerous class of street dealers. Taking these people as a body in the Western Metropolis, we look upon them as being inferior in moral status to those of the same class in any other town in Great Britain. Many of them are characterised by a total disregard to all the common decencies of civilised life. They are dirty and dissipated in their habits, and disgustingly brutal in their manners.

The existence of the street dealers in Glasgow, like that of the same class in all other places, is surrounded with continual hardships, difficulties, and privations. The hardy members battle on through years of suffering, while those of a more delicate mould continue to drop off by the way, and the thinned ranks are again recruited from the labouring population. The localities occupied by the nomads, who live from hand to mouth, are the Winds, Vennels, Briggate, Saltmarket, High-street, the Havannah, King-street, in the Calton, and Main-street, in the Gorbals. It would be a painful task to describe the condition and ever-changing character of the dense mass of human beings who continually battle for life in these purlieus, where disease and crime flourish in tropical luxuriance. We have no wish to moralise upon this state of things, but it seems to us that poverty and crime are the necessary appendages to national wealth and a high state of civilisation. Perhaps it is necessary that the pride and vain glory of the great and wealthy should be checked by the fearful picture of sin, misery, and human degradation that is continually before their eyes.

Glasgow is divided into several distinct regions where both the social and physical characteristics of the town stand out in bold relief. The districts in which the labouring classes, tradesmen, and artisans reside, cover a large part of the city and suburbs. For some years the Cowcaddens has been the seat of a numerous class of tradesmen and unskilled labourers. The same may be said of St. Rollox. The suburban district of Anderston, is full of a hardy, and an industrious race of mechanics, many thousands of whom are employed in the wood and iron ship-building yards. As we said before, the banks of the river for miles is one continued scene of human industry. The emporium of cotton lies on the south eastern quarter of the town in Bridgeton, and the Calton, where a vast number of people are employed, either in this branch of business or in others, depending upon it. Hutcheson, Gorbals, and Laurieston, are also filled with large

industrial populations. During the last ten years, the iron trade in its various branches has furnished a rapidly increasing market for labour. In that short period of time, foundries, machine shops, enginemakers', and boilermakers' establishments, have sprung into existence round the whole of the suburbs. These new sources of labour are the means of calling others into being wherever they are located; the consequence of this is, that both the commerce and the manufacture of the town are continually expanding.

To those who have observed the progress of affairs in Glasgow during the last twenty years, it must be evident that a material improvement has taken place in the moral and social condition of the labouring classes. We can well remember, when the only periodical within the reach of the majority of the people was the *Gazette*, published by Mr. Peter M'Kenzie, sold then at twopence. In a literary point of view, the *Gazette* was coarse, vulgar, and personal, and thereby pandered to the lowest tastes of the people. Since then, a brighter age has dawned. The intellectual food now set before the labouring classes, is not only good in quality, but it is cheap in quantity. At the present time, cheap reading-rooms are scattered over all the districts of the town. Some of these establishments are supplied with all the leading newspapers of the country from the *Times* downward, as well as the more valuable magazines and weekly periodicals.

Generally speaking, the mechanics and tradesmen in Glasgow are a very shrewd, thoughtful, and intelligent set of men, and we should say, will stand comparison with a similar class in any other part of the country. The most mischievous circumstances many of the tradesmen have to contend with, is the sin of intemperance in their wives. It is a melancholy truth, that the homes of numbers of working-men are ruined by their partners. There are few places where married females are so liable to get initiated into drunken habits as in Glasgow. This evil is by no means confined to the lower orders of the people; we could point to the homes of many within the circle of our own friends, that have been made desolate by this accursed vice. The sin of intemperance will continue to go on unchecked in the face of legislative enactments, and the declamation of pulpit orators creating wretchedness, misery, and crime, until society learns to treat it as an outrage against itself.

The personal freedom enjoyed by the working classes in Glasgow at the present time, is very different to the inquisitorial surveillance under which they laboured a few years back in her history. Up to the year 1832, civil and religious liberty was much better understood in theory, than in practice, in Scotland. Since the above date, the public mind has undergone a wonderful change, and on the whole, we should say for the better. The mind of the lower orders is now much better informed on all questions relating to the common humanities; and the people in the middle ranks of society are able to judge of the relative position of both men and things to each other from a more philosophical point of view.

Whether we look upon Glasgow from a moral or commercial point of view, she presents to our mind several curious phases. In her moral and social character, we have the greatest possible extremes.

There is no doubt a great amount of sincere religion ; but it must strike the most superficial observer that there is also a vast amount of constrained morality ! This accommodating virtue, or semblance of it, is not a thing to be trusted to ; still, however, there is a species of public opinion which acts as a check upon it, by which means self-respect is guarded from without. Taking the religious element in its most active character in connection with both halves of the split church, we cannot find its influence to be at all in keeping with the pretensions of these two bodies.

The commercial phases of Glasgow, taking them historically, are worthy special notice. About 100 years ago, a few individuals laid the foundations of their fortunes by the tobacco and rum trade in Glasgow. These two branches of business were mothers to other kinds of industry in a small way. After these we have the cotton trade rising into notice. This business, too, branched out into several divisions. While the cotton trade was gradually unfolding itself, the application of machinery, by the aid of steam-power, to manufacturing purposes, produced a new era in the commercial character of Glasgow. After this we have the town transformed into a seaport, by which means her own produce was exported, and her market opened to receive the produce of other countries. The coal trade follows in the wake of steam. The town increases in population, and the shopocracy swell in numbers, and ship-building becomes a successful branch of industry. Last of all, we have the iron age, with its wonderful ramifications identifying itself with all the other branches of industry in the country. It will thus be seen that Glasgow has been surrounded with circumstances of the most fortuitous nature. These embrace what may be termed the first essential elements of modern commerce, being coal, water, and iron. It must be admitted, however, that another element, no less essential, was required to act upon those above named. This last, we term mental energy ; and, we think, that this property of the human mind has amply demonstrated its restless activity in the Western Metropolis. The numerous public buildings, the splendid laid out streets, the gorgeous shops and warehouses, the public halls and offices, the solemn temples, huge manufactories, and princely private dwellings, with schools, colleges, and public hospitals, are monuments that will save us the trouble of proving how that energy has manifested itself in making Glasgow what she is.

Before closing this very imperfect sketch, we have much pleasure in acknowledging the obligation we owe Dr. Strang, City Chamberlain, for the kind and prompt manner in which he met our enquiries, as well as having furnished us with much valuable matter. This gentleman's labours, in the science of vital statistics and political economy, have been the means of reflecting no little honour upon his native city. His reports upon commercial and social progress, in connection with Glasgow and the West of Scotland, will furnish valuable information to the future historian of Scotland ; and his late work upon the clubs of Glasgow, supplies a valuable supplement to her history, during the most important era of her civic existence. As a public officer, Dr. Strang is, most assuredly, the right man in the right place.

CHAPTER X.

D U B L I N.

THE City of Dublin presents many peculiarities to the inquiring stranger. It is beautifully situated on both banks of the Liffey. On each side of the river the ground rises with an easy ascent, so that one part of the city rises gracefully above the other. The public buildings in Dublin stand out in bold relief, and are objects of no small attraction to all who visit the city. The Custom-house is by far the noblest building of the kind in the United Kingdom. This magnificent national structure was erected in 1781, and cost the country 235,000*l*.

The dome in the centre of the building is 125 feet in height. The façade is ornamented with a number of well-executed symbolical figures; the one on the top of the dome is a colossal figure of Commerce. The Tobacco-warehouse is in the immediate neighbourhood of the Custom-house, and is said to be the largest and most complete building of the kind in the world. The Irish Bank, or, more properly speaking, the House of Parliament, has no rival in Great Britain. The general style of its architecture is the Ionic. This, however, has been varied at the east end of the building, in order to make a distinction for the House of Lords, which is in the Corinthian order. The front of the building is adorned with a magnificent arcade and a lofty portico, supported on a beautiful colonnade. The house was ten years in building, and was finished in 1739. The Post-office is also a very handsome building, and pleasantly situated in the centre of Sackville-street. This edifice was finished in 1814. The Rotunda forms a beautiful terminus to the upper part of Sackville-street. This noble building is principally used for public meetings of the citizens.

The Four Courts is also a most magnificent building, and decidedly the most complete Temple of Law in the United Kingdom. This erection combines in its external appearance all those beauties of outline that please the eye and satisfy the judgment; and its internal arrangements have been so constructed that every facility is afforded to the members of the bar to move from one court to another without loss of time. It certainly strikes one as something strange, when we consider the spaciousness and completeness of arrangement in this building, to know that the law courts in London are such miserable and inconvenient erections. This edifice is pleasantly situated on the north bank of the Liffey, about the middle of Queen's-quay, and may be seen from a considerable distance. It was opened for public business in 1796, since which time its walls have re-echoed with the eloquence of Grattan, Sheil, O'Laughlan, O'Connell, and many others

whose names have been wedded to the history of their country. The Castle has long been a place of public interest, both to the citizens and strangers. It is said to have been built in 1205. Since the British have been masters of the country, the Castle has been used as a mock palace, the Lord Lieutenants holding their courts and levees within its walls. The only part of the old building now remaining, is the round tower, on the south-east angle of the square. The modern erections are all built of brick, and, on the whole, have a somewhat dingy appearance. The Royal Exchange stands in close proximity to the Castle, and forms a terminus to the view of Parliament-street, and a considerable part of Capel-street. The next building of public note is the College, which stands at the lower extremity of College-green, a continuation of Dame-street. This institution is furnished with a magnificent library, and a very good museum of natural curiosities. The College is a very spacious building, or rather a series of buildings, with two quadrangles, and very pleasant grounds for the students to exercise themselves in.

We may mention, that a large portion of Dublin is calculated to impress the mind of a stranger with feelings of sadness. This arises from the fearfully dilapidated state of an immense amount of property that lies scattered over a great portion of the city, but, more particularly, the ancient part of it. The large district known by the name of the Liberty, which forms, as it were, a belt about one-half of the town, may be said to be made up of a series of ruins. In this district there are many hundreds of houses, among which there are numerous large buildings, which erewhile had been used as gentlemen's mansions, places of business, or manufactories, crumbling into decay.

If the Earl of Meath ever takes a sentimental stroll through the Liberty, his lordship could not fail to learn a sad and painful lesson of the mutability of all-sublunary things. The depreciation of that portion of his lordship's patrimony affords a striking instance of the change that must have come over the commercial and social condition of the Dublin people of late years. Many of the tumble-down mansions in this locality have resounded to the sound of mirth and joyousness, and some of them are historically connected with the spasmodic upheavings of the nation in her darkest hours of suffering.

The whole of the market-places in Dublin seem fairly worn out of service. Many of them are in a perfect state of dilapidation. Like a large portion of the private property in the city, these buildings have been allowed to crumble into decay, without any attempt to repair them.

The Docks in Dublin are calculated to impress the mind of a stranger with much the same melancholy feeling that is inspired by the ruins above noticed. There is a strange, indefinable dullness hanging around these deserted basins. In their vicinity, life is as stagnant as their pools of water. Here and there, a solitary vessel may be seen discharging her cargo; but, instead of the continual hum and bustle of commercial life, the echoes of a few voices may now and again vibrate on the air, like the cry of a stork in the wilderness. There can be no doubt that the time will come when the death-like

stillness that hovers over these marine depôts will again give place to the bustle and activity of resuscitated commerce, and the wakeful energy of manly industry.

It is certainly a sorry sight to see one of the finest Custom-houses in the world holding the unenviable position of a mere piece of ornamentation; or, in other words, a sinecure building. It may be taken for granted that this magnificent establishment was not erected for the mere purpose of being looked at. In our mind, there is no doubt that the manufacturing and commercial condition of the country must have been in a comparatively flourishing state before the Union.

The Linen-hall furnishes an apt illustration in support of those who argue in favour of Ireland's once prosperous condition. This hall, at one time, must have been a really splendid national building, and we can well imagine when its numerous offices presented a scene of commercial activity, whose influence was felt over a great portion of the country. This hall is rapidly sinking into decay. The quadrangle is covered with a luxuriant crop of grass, and wild weeds decorate its walls. The rooms are filled with dull vapours, that are feeding upon the perishing timber. As the visitor traverses the spacious passages and long corridors, the sound of his steps awakens the slumbering echoes, and he feels overcome with a sense of the desolation that surrounds him on every side. One of the large wings of this once emporium of Ireland's staple manufacture has been converted into a use which could scarcely have been anticipated by its founders. Instead of being a depôt for linen—the fibres of which had passed through the fingers of many fair and lovely owners—and bales of flax, this part of the building now resounds to the voices and merry glee of men who wear her Majesty's uniform in some '*firsty-first*' of the Line.

It is a melancholy duty to dwell upon consumptive subjects, yet the world is full of the living, the dying, and the dead. London may one day become a dreary wilderness, and Ecclefechan, by the decree of the Fates, may rise into a flourishing city. Nations, as well as human beings, have their infancy, prime, and decrepid old age, but they are like the flowers of the forest—other seasons may call them again into life with renewed beauty. Before we are done with Dublin, we shall have a more pleasant task than of dwelling upon her faded glories. The traditions of the past are always things of deep interest to the living; and even though they may be surrounded with melancholy recollections, men are prone to look back to them with feelings of veneration. The circumstance of a part of the Linen-hall in Dublin being converted into barracks, may yet become a matter of pleasing history, when the value of every yard of ground in Dublin may come up to the present value of space in London. Whether a so much desired consummation will ever take place or not, we are sure the Earl of Meath will thank us for suggesting its possibility, and we can assure him, that we are as anxious for the regeneration of the Liberty as any of his Grace's tenants who live within the sound of St. Patrick's bells, or walk the pave in Thomas-street brogues!

The Phoenix Park is one of the most pleasing features in the neighbourhood of Dublin. It is really a magnificent piece of ground, and

presents many beautiful aspects in landscape scenery. A large portion of the ground wears a delightfully undulating surface, with numerous green slopes and fairy dells.

In some parts of it the wild furze and yellow broom form a number of natural wildernesses, where the youth of the city are wont to disport themselves in the balmy evenings of summer. In our estimate of natural scenery, we know of nothing which adds so much to the beauty of this place as the numerous clumps of hawthorn-trees that stud it like so many vegetable gems. In the early part of summer, these wild natives of the forest actually make the air redolent with their sweet fragrance, and charm the eye with the variety and profuseness of their blossoms. It really forms an amusing study to observe the manner in which many of them have twisted themselves into every conceivable and inconceivable form. Some of them drop their umbrageous arms as if in langour, others hold them up as if in defiance of some foe, while others extend them over the space beneath with a patronising air. Many of these trees are well calculated to act upon the risible faculties of strangers by the manner in which their stems and branches are twisted and twined round each other. Indeed, one would almost imagine that their numerous fantastic forms and strange shapes had been produced in the wantonness of downright fun. This Park, to our mind, is much superior to any of the London pleasure-grounds, and we conceive that its chief beauty is to be found in its apparent want of artificial treatment. The only parts of the grounds where the labour of man is visible, are the numerous carriage-drives which intersect the Park in all directions, and the space enclosed round the Viceregal Lodge, with the pretty little gardens attached to the several lodges. In many places the roads pass through really delightful scenes. In one place a carriage drive may be seen winding round a congress of stately beech-trees or a clump of hawthorns, in another it is lost to sight in a fairy dell, and anon running up the opposite slope in a series of curves; and ultimately you lose sight of it in a sylvan arcade.

There is one part of the Park which is set apart for a training-ground for the military: this space is known by the name of "The Fifteen Acres." It may be mentioned that the Park contains 17,000 acres. The training-ground has several artificial mounds thrown up on the south-east for artillery practice. Many a magnificent military display, with "all the pomp and circumstance of glorious war," has taken place on that piece of ground since the time William reviewed his troops on it, after the Battle of the Boyne, in 1790. A little way below "The Fifteen Acres," the Magazine stands on a rising ground. This place is entrenched round with an earthwork, and has, therefore, a sort of *stand-off* character about it. The magazine has barrack accommodation for a company of artillerymen. The situation of this place is really beautiful: behind it the green sward rolls away like an undulating carpet for nearly three-quarters of a mile; in the front, there is as pretty a little witching dell as the eye of a poet could wish to rest upon. The various scenes which lie in the field of view on the ground beside the magazine are both numerous and delightful:—

Down beneath, the Liffey gently glides along until it is seen enclosed between the quay walls of the city. Away to the south-west, the Grand Junction Canal may be traced between a double row of tall poplar trees as far as Clandalkin. At this place, one of those Irish architectural mysteries may be seen in the shape of a round tower. The view in this direction, in the grey twilight of a fine summer's evening, produces a very peculiar effect on the mind of the beholder. The tall trees above noticed are easily conjured into as many supernatural beings keeping sentry over the graves of the ancient fathers of Mononia. The Dublin mountains, with their dark outlines, and still darker bays, form a fitting back-ground to this magic scene. Farther to the east, the city is seen over its whole extent, with its numerous public buildings standing out in bold relief, and its sacred fanes piercing the light haze that lingers over the town in fine weather. When the sight of the beholder has been satiated with the picture of the living city in detail, the eyes will necessarily wander away to the east, and take in the expanding estuary of the Liffey as it stretches away into the arms of the Irish Sea. On the right, the hazy mountains of Dublin bound the view; but in the intervening space, there are abundance of beautiful objects to be seen studded over an undulating landscape with sylvan accessories. About two miles beyond Dublin, the lordly mansion of one of Ireland's noblest benefactors may be seen on a rising ground, high above all the surrounding objects. This is the country-seat of Mr. Dargan, who may be said to be one of the most successful enterprising men of the age.

The phases of social life in Dublin are in some measure similar to those that characterise society in the most of British towns. The numerous districts occupied by the lower orders of the people, are full of narrow dirty streets, that are mostly composed of property in a state of ruin. The dwellings in which these poor creatures live, are generally the most filthy hovels it is well possible to conceive. The value of labour in Dublin is very low; indeed, the labour market is sadly overstocked for it to be otherwise. The poor, who live by street dealing, are numerous, and may be looked upon as the lowest specimen of their class. The contrast between the upper and lower ranks of society in Dublin presents to the mind of an observer the appearance of ease, elegance, and comfort, on the one hand; and poverty, want, and suffering, on the other. With the exception of Edinburgh, we know of no town where apparent affluence and refined society is set off with so great an amount of half savage life and abject poverty. Amongst a considerable number of the retail dealers in the Irish capital, there is a constant struggle to be genteel. Many of the shopkeepers endeavour to ape the manners and habits of those above them. In their domestic arrangements, the drawing-room must be made to wear the appearance of respectability at the expense of the more useful parts of their dwellings. We have seen some of the kitchens of respectable tradesmen that were the most miserable, ill-furnished, dirty, disagreeable hovels, it is well possible to conceive. In these places there is almost an entire want of those necessary domestic appliances that grace the family sanctums of English homes.

While in Dublin we heard numerous complaints of the careless, slatternly, and dirty habits of the female servants. So far as our own experience is concerned, we really cannot see how the matter should be otherwise. A respectable tradesman's wife in Dublin would consider it beneath her dignity to attend to the affairs of the kitchen department in her own establishment. If a servant girl has had the good fortune to have been properly initiated in the domestic duties, she may get on pretty well; but if she has been newly brought from the Bogs of Allen, or the Wilds of Leitrim, she will be allowed to flounder on in the new vocation without any of the aids that are absolutely necessary to fit her for the duties of civilised life.

In Dublin it would be considered *infra dig.* for a tradesman's wife to cook the family dinner, or wash the door steps of her own house. Indeed, it is a very rare thing for these ladies to be seen in their kitchens at all. Seeing that matters are in this state, it would really be surprising if the poor servant girls should know anything about the duties of house-keeping. The truly primitive state of social existence in the country parts of Ireland, is of such a nature, that nobody in their senses could expect such a people to know anything about the duties connected with a highly artificial state of society. Many of the country girls in Ireland, when transplanted into genteel society, would be much in the position the Newcastle pitman was, who, while sitting in a commercial traveller's room in that town, was endeavouring to follow the example of the company into which he had unwittingly intruded himself. Upon the occasion in question, a gentleman called for a boot-jack, the pitman also requested to be served in the same way; one of the company observing that he wore shoes instead of boots, civilly enquired what he was going to do with the boot-jack? "Gad smash," replied the honest miner, "de ye think I canna eat a boot-jack as weel as you?" Many of the domestic appliances in the dwellings of respectable tradesmen would be equally as strange to the simple country girls, as the boot-jack was to the Newcastle pitman.

Taking society in Dublin on the whole, it is really not what it appears to be. The outside of a large number of the people is gilded with all the refinement of modern civilisation; but their real life behind the scenes is half-genteel and half-civilised. What we mean by half-civilised is, that they are wanting in many of those little domestic courtesies that constitute the charm of social existence. There is an amazing warmth of feeling about the Irish character, with a highly chivalrous and generous spirit. But the best impulses arising from the generous nature of Irishmen, are too frequently blighted by sectarian prejudices. For centuries the people have been battling with each other in all the bitterness of implacable hatred. If the two contending factions in Ireland would allow each other to find their way to heaven in their own manner, each of them would have more time to attend to their own business, and study their social improvement. The Protestant party have been acting upon a most mischievous policy. They look down from the standard of their own assumed superiority upon their Catholic fellow-countrymen, and treat them as

if they were an inferior race. Instead of endeavouring to cultivate a kindly feeling, they take every means of insulting them by ridiculing their religion. In passing along Sackville-street, a stranger could scarcely fail to observe a large glaring placard posted in front of a religious establishment. The placard in question contains a tissue of the most bare-faced insulting statements in reference to the religion of the great majority of the people it is almost possible to conceive. What appears most amusing to us, is, that the godly Protestants feel themselves annoyed that the Catholics should feel and act as other men do, under insult and unmanly treatment.

For some years past, society in Dublin has been in a state of transition, and in the meantime it is undergoing a rapid change. The happy influence of social progress is daily manifesting itself in the improved manners and habits of the people. We are firmly convinced that Dublin is now the most moral town in the United Kingdom. There is decidedly less crime against property in Dublin than there is in many of the Scotch and English towns with one-third of her population. If it were not for the little ebullitions occasionally produced by party feeling, morally speaking, Ireland is now far in advance of either England or Scotland. We are not sure, however, that her progress in trade and manufactures will tend to improve her moral character. That she will become a trading nation, we think there can be little doubt. The guardianship of her morality may, therefore, be left to her people, under their altered circumstances.

The police force in Dublin is composed of the finest body of men, in their physical appearance, we have ever witnessed in such a service. The standard height of the corps is five feet nine inches, but the majority of the men are nearer six feet. The limbs and shoulders of some of these conservators of the peace, like Paddy Carey's, "would make a chairman stare." This body is 1,000 strong. From the quiet, sober, and peaceful character of the city, we should imagine that their duties were very light. The only matter of any consequence, of a criminal nature, the magistrates have to deal with here, are trifling cases of petty larceny. And it may be mentioned, as a curious fact in British modern society, that cases of burglary are, like angels' visits, both few and far between. We have been informed that this savage acquaintanceship with the interior of other people's property does not average one case in the twelve months. If this sort of crime against property was reduced beneath scores in Glasgow, in the same length of time, the police there would imagine that a wonderful reformation was being effected by their vigilance.

Before the year 1847, if an Irishman was a few days without joining in a "row," he would say that he was feeling "blue-moulded for the want of a *bating*." Since the above date, a considerable change has come over the national mind. Father Matthew, the failure of the potatoes, and a more reflective condition of mind, have made the people care less for poteen, and more for themselves. The consequence of which is, that Ireland is, at the present time, the most sober division of the United Kingdom.

CHAPTER XI.

THE WHOLESALE SHOE TRADE.

THE geographical distribution of trades and professions in Dublin is very clearly defined. William-street may be looked upon as the most important locality for merchants in the wholesale business of any in the city. The spacious and magnificent mansion, built for the family of Lord Powerscourt, is situated in the centre of this street. This once princely residence is now occupied by the Messrs. Ferrier, Pollock, & Co., the largest exclusively wholesale drapers in Ireland. "What a change is here, my friends; to what base use things may come at last!" The gorgeous saloons and splendid apartments that were wont to be filled with the proud, the gay, and the great of the land, in the palmy days when Ireland's lords of the soil were heedlessly sailing down the stream of pleasure and extravagant dissipation towards the fatal rocks of destruction, are now converted into stores for dry goods! Where light feet tripped to the joyous sound of the harp and lute, the vulgar god of commerce plies his bartering vocation, and, instead of mirth and revelry among noble men and fair women, the sound of clerks and warehousemen may be heard, as they check off their newly-imported bales of goods. It has long ago been a cuckoo cry, among certain classes of commercial men in Ireland, that they had no chance to compete with their Scotch and English neighbours; and the reason assigned for this, to them, apparently helpless state of things, was, that both the Scotch and English were combined to keep them down! We can only say, that such an admission comes with a bad grace from men who lay claim to anything in the shape of self-reliance.

In this chapter, we will be able to prove that the heretofore non-success of Irish merchants and manufacturers almost entirely arose from a want of confidence in themselves, instead of any opposition from their neighbours. We will prove that, where the necessary conditions of commerce have been complied with, that the wide field of business has been as open to Irishmen as those of any other nation, and, where they have learned to work instead of grumble, their success has been sure. The house immediately under notice is an apt illustration of the above statements. These gentlemen have carried their operations into England, and they are fairly competing with the large wholesale manufacturers in the English market, and, if we believe their own statement, their efforts heretofore have been crowned with success.

The wholesale grocers of Dublin are located in Cope-street and Thomas-street; and the wine merchants *rendezvous* in the Mid-abbey.

The leather business, in its various branches, is scattered over the desolate region of the Liberty. This trade would seem to have undergone a considerable revolution during the last 10 or 15 years. At one time, the Liberty was full of small manufacturers in the tanning, skinning, and tawing trade. Generally speaking, these men were blessed with a small stock of capital, and a large amount of indolence. In the tanning trade, the want of capital forced the small manufacturers to embrace all the near cuts that dishonesty or ingenuity suggested. The consequence was, that their hides were sent into the market before they had time to be converted into leather. We have no doubt but these men grumbled lustily, because their countrymen preferred having leather from the English markets to their untanned skins, and would imagine that they were badly treated by the Saxons taking the bread out of their mouths! Of late years, more than two-thirds of the people engaged in this business, as manufacturers, have been swept away by the altered circumstances of the times, and we are of opinion that the trade has been left in a more healthy condition. From what we know of the tanning business, we should say, that no man can carry it on successfully without considerable capital. The process of converting raw hides into leather is both long and tedious. In many cases, it requires at least 14 months to substitute the vegetable for the animal nature in the skins. While the hides are undergoing this long process of change, the capital invested in them is completely dead. In order to carry on the business, two other capitals are required. The bark and other materials necessary for the conversion of the hides into leather, also require a large investment; and, last, though not least, the wages for labour must be forthcoming. The principal house in this business in Dublin, is the firm of Hayes, Brothers. These gentlemen have a very large and well-arranged establishment in the New-row. They are both tanners, curriers, and leather-dressers. Tanning, however, is their leading business. For some years, they have been doing a large trade in curried kips. These skins are got up in the best style of workmanship; and, as the firm possess sufficient capital for their business, they are enabled to go to the first market for their material. In this business, it is a matter of great importance, that the shoemakers and retail dealers can be served with goods of a uniform quality, which is the case in this house. From the manner in which these gentlemen conduct their business, they have no fear, under ordinary circumstances, from the competition of any house in the trade, whether English or Scotch. The number of men employed by this firm, in the tanning and currying departments, average from 60 to 70.

During the last three or four years, there is scarcely any class of manufactures, in the United Kingdom, that have not suffered more or less from the advance in the price of the raw material. In this business, however, the advance has been unprecedented. We are told that, in some instances, the tanners are now paying as much for a single hide as they did a short time ago for three. This state of things is calculated to affect both our purses and understandings in no very agreeable manner.

As a branch of domestic industry, the boot and shoe trade seems to us to take the lead of all others in Dublin. The retail manufacturers in this business are scattered over all the districts in the city. The neat and tasteful manner in which the boots and shoes are got up cannot fail to draw the attention of strangers. So far as our experience is concerned, we know of no other town in the United Kingdom where the makers are so numerous; and certainly we know of no place where the same class of goods are so tastefully got up in point of workmanship. The average wages made by the workmen in this trade, is said to be about 16s. a week.

There are several circumstances connected with this business, so far as the workmen are concerned, of a very disagreeable character. The unsteadiness of the trade exercises a depressing influence over the men. But that which is most dangerous in its tendency, is the system, which has been inseparable from the business, of the workmen being obliged to waste their time in hanging on about the premises of the manufacturers for their work. Saint Monday has ever been a lost day in the calendar of a shoemaker's working time, and hundreds of them have been ruined by habits of indolence and dissipation, superinduced by being obliged to fritter away their time in waiting-on for their work.

Previous to the year 1840, there was not a single wholesale manufacturer in the shoe trade in Dublin. Up to that date, the whole of the retail dealers, who vended shop goods, were served by the English manufacturers. From what we are about to state, it will be seen that when Irishmen apply themselves to commercial pursuits in a business-like manner, the market is as open to them as to any other class of men. In the above year, two young men, brothers, were carrying on business, as retail shoe dealers, in Dublin. These gentlemen saw that the Irish market, in the wholesale boot and shoe trade, was entirely monopolised by the English manufacturers. After reflecting upon the matter for some time, the Brothers Delany saw that the business was just as open for Irish manufacturers as it was for the English, if the proper means were taken. We often observe, that, when men make up their minds to accomplish any object, they are almost sure to do so. The Delany, Brothers commenced operations with a thorough determination to carry the trade out to the extent of their capital. In the course of a short time, these gentlemen wrested nearly the whole of the trade in Ireland from the English manufacturers. Following up the business in a true spirit of enterprise, they extended their operations to Scotland, and successfully competed with the wholesale houses there. Having seized all the Irish, and a large part of the Scotch trade, from their English rivals, they ultimately met them in their own market, and established their business through the whole of the populous districts of England. For some years past, the Delany, Brothers have had two travellers regularly employed in England and Scotland. When one of the members (now proprietor of one of the monster retail houses which we shall allude to hereafter), of this firm was in the habit of travelling, he noticed to us, that, during his first journeys in England, many of the parties upon

whom he so called *sneered* at the idea of purchasing Dublin-made goods, and treated the matter as ridiculous. The fact was, in some instances, the thing appeared so much out of the way to many of the dealers, that they could scarcely afford to treat him with common courtesy. Since those days matters have changed, and, instead of the house being obliged to press their goods upon the dealers, the orders come to them unsolicited. These gentlemen are, therefore, the fathers of this now thriving branch of industry. Some few years ago, they established houses in Sydney and Melbourne, to which they export, upon an average, no less than 20,000*l.* worth of boots and shoes annually. The manner in which these gentlemen get their goods up, insures them a ready market for all they can make. We are aware that some of the English manufacturers have brought discredit upon the trade in that country, by sending boots and shoes to Australia whose *soles* and bodies would scarcely hold together during their transit out. The consequence of this dishonest mode of dealing, is, that the English merchants have been superseded in the Australian market by men who can be trusted. There can be no question, that many of the manufacturers in this country have brought disgrace upon the trading character of the community by their dishonest practices.

The continued success of the Messrs. Delany, Brothers was the means of inviting a number of other gentlemen into the trade, who, instead of becoming rivals, were looked upon as fellow labourers in a business where there was room enough for all. The principal gentlemen now in the trade, may be classified as follows: Mr. M'Dowell, Messrs. Heather & Ovans, Morrison & Co., Pim, Brothers, and Mr. Carleton. These gentlemen, along with the Delany, Brothers, employ upwards of three thousand workpeople, including women and children. We believe none of these gentlemen have been in business more than from nine to ten years, with the exception of the last named firm. Mr. M'Dowell does a very extensive trade both in Ireland and Scotland. One of the leading branches of business in this house, is the manufacture of ladies slippers. From all we can learn, the Dublin manufacturers have the market in these goods almost entirely to themselves, inasmuch as no other manufacturers elsewhere can produce goods of the same make and workmanship for the price. A large quantity of these goods made by the above gentlemen, are sold in the English market. Boot and shoe-making is a collateral branch of the business carried on by the Messrs. Pim, Brothers, and of all the monster houses, with the exception that they buy from chamber masters, a numerous body in the city. This is one of the seven monster drapery establishments in Dublin. But unlike any of the other great firms, these gentlemen are large manufacturers; and, therefore, employ a great number of people in reproductive labour. When we come to notice the manufacture of textile fabrics, we will have occasion to introduce this firm in connection with the poplin business. In the meantime, we may mention that they employ directly and indirectly upwards of two hundred workpeople in the boot and shoe trade.

The planting, rearing, and successful maturing of this business,

affords another convincing proof that Irishmen have as fair a chance in the general market of the country when they enter upon commercial pursuits with the requisite qualifications as any other class of people can have. We are aware that the Irish people have been unfairly treated by English misrule; but we are certain if the trading community in the country had brought their energies to bear upon mercantile pursuits in a proper spirit, they could long ere this have had their share in the commerce of the nation. It is really curious to observe the distinctive features of the Scotch and Irish people in connection with matters of business. Scotchmen have long been characterised for caution and plodding industry, while Irishmen have been looked upon as a mercurial, thoughtless, and even reckless set of people. In comparing the idiosyncracies of the two peoples, we think it would be a difficult matter to account for the go-a-head propensity of the one, and the stand-still character of the other. Yet, strange as it may appear, the commercial men of Ireland, up to the present time, are by far the most cautious set of people connected with business to be found in the United Kingdom. Whether this caution will continue to regulate the conduct of commercial men in Ireland when they may have tasted the magic sweets of successful speculation, time alone will tell.

CHAPTER XII.

TABINET MANUFACTURE.

It is an interesting inquiry, to learn how certain seeds of manufacturing industry have been transplanted from one region of the world to another, and to observe how they take root in congenial soil, flourish, and become naturalized. During many centuries, the linen trade of the North of Ireland was wedded to the everyday life of the great body of the people. A few years ago, the cheerful sound of the spinning-wheel was heard on every hearth, and the making of yarn was intertwined with the people's most pleasing associations, and if they did not depend upon it for subsistence, it was an auxiliary they could ill spare. The march of science, in connection with mechanical art, has, in a great measure, swept away the spinning-wheels, with all their home associations, and transferred the labour of thousands of females from their domestic hearths to modern factories. Thus it was, ere the third decade of the nineteenth century was completed, the homely toil of the people had almost entirely passed away, like the vision of a dream! It must be remembered, however, that the distaff, the wheel, and the loom had been brought from the far East, and were introduced into the Western Isles by men who had tasted the sweets of civilisation. A higher state of civilization has superseded the use of these tools in the labour of men's homes; but, as the great family of the human race travel along the highway of time, a yet higher state of civilisation may work still greater changes.

It is now nearly 200 years ago, when a great portion of the population of Western Europe were struggling for civil and religious liberty. At that time, great changes were hanging over the social

and political condition of the people in Ireland. The dynasty of an unfortunate royal race was then on the eve of becoming a thing of history, and the war of creeds and nationalities was doomed to sweep over the face of the kingdom, like a devastating storm. Amid the conflicting elements of opposing opinions, men forgot the sacred precepts of Him in whose name they were battling. About the year 1684, a number of artizans, in France, sacrificed their love of home and country to the higher love of religion. These men, with their wives and families, fled from the shores of La Belle France, and found an asylum in the capital of Ireland. Having learned the art and mystery of weaving, where that valuable branch of industry had long been allied to science, these men immediately began to ply their vocation in their new home.

There are two circumstances connected with the operations of men, that may be looked upon as the most prolific sources of invention. The one is necessity, and the other competition. It is true that competition itself may frequently become a necessity in kind, but it never can furnish the same urgent motive to action as the one arising from a total want of the thing required. The French refugees had been taught to manufacture the beautiful fabrics in silk that at that time graced the fair daughters of France. A knowledge of chemistry, and an almost intuitive love of the beautiful, both in nature and art, had made the French workmen famed over the world, but more especially for their productions in textile fabrics.

After the refugees had settled in Dublin, it was found that they could not procure a sufficient quantity of silk to meet the increasing demands made for their productions. To this scarcity of raw material we owe the introduction of one of the most substantial and beautiful fabrics ever produced in the loom. The French weavers, instead of making their webs of silk entire, as they were wont to do, commenced to manufacture with a silk warp and a worsted weft. When the idea of the union between silk and wool suggested itself to those men, they had no notion of the really beautiful effect such a combination would produce. The amalgamation of these two animal products was denominated *tabinet*, by which name it is now known all over the world.

Since the early part of the seventeenth century, the manufacture of *tabinet* has been almost peculiar to Ireland. These fabrics find their way to every part of the civilised world, and may now be said to be identified with the commercial history of the country.

The *tabinet* business has this peculiarity of character, that, under ordinary circumstances, no great quantity of the material can be consumed, in consequence of the manufacturers having them made in such a superior style, that they cannot afford a reduction of price. Its durability is also against its quick demand in the market. The fact is, a single dress of *tabinet*, of the best quality, with a little care, will last as long as two dresses of any other fabric.

As the business is one of considerable importance in a national point of view, we will endeavour to give our readers an idea of the various processes of manufacture, its industrial influence, and commercial bearing. Our knowledge of the practical part of *tabinet* manu-

facture was obtained in the factory of the Messrs. Fry, who were originally coach-lace and fringe manufacturers, but about thirty years ago, added the tabinet to their other business, since which they have continued to take in other new branches. The looms in which this beautiful fabric is made, are the same in character in which all other woven goods are produced. Before the introduction of the Jacquard loom, all the figured fabrics of this description of goods were made in the old harness loom. When these machines were in use, the weaver was assisted in giving the patterns to his piece by the aid of draw-boys. The Jacquard loom now enables the weaver to work into his cloth the most complicated designs, without any other assistance than the machinery of his loom. Whatever pattern may be required for his work, has only to be placed in the machinery to enable the weaver to produce it according to the design. The manner in which this is done is as follows:—A copy of the design intended for use is given to the foreman over the work, who has the pattern transferred to a set of perforated cards. These cards are perforated by the aid of a small machine, which is operated upon in much the same way a person would finger the keys of a piano. Every pattern given to the cloth must correspond with the number of shoots in a certain space in the web. The cards, when completed according to the design required, are placed in the gearing above the loom, after having been attached together endways. When the loom is in operation, the cards are made to pass over a cylinder with four sides, each of which are also perforated full of holes. The manner in which the cards and cylinder is acted upon is by a series of needles, which rest upon spring-ends; the action of the loom causes these needles to pass over the plain parts of the cards, and perforate the holes necessary to form the pattern. In the action of the needles, several small levers are acted upon, by which means the needles are made to move up and down in such a manner as to communicate the design to the cloth. We may notice, that the holes in the squares of the cylinder are for the purpose of receiving the points of the needle after passing through the perforated holes in the cards. It is by this means that all sorts of figures and brocades in the most beautiful and elaborate designs are wove into these fabrics.

Up to the present time, the old system of the hand-shuttle is still adhered to in all the workshops in Dublin, with the exception of the one we are describing. The tabinet trade in Dublin, like all others in which large numbers of men are employed, has been subject to disturbing causes, arising from the combination of the members of trades' unions. Some time ago, the Messrs. Fry introduced the use of the fly-shuttle into their works, which enabled the men to produce the cloth with a much greater facility than could be done under the old system. Working-men have seldom much taste for any thing in the shape of innovation upon their old-fashioned and time-honoured systems, even though the change should be of direct advantage to themselves. Such was the case with the men in this employment. The Messrs. Fry were obliged to propose a small reduction in the price for making a certain class of their goods, in

order to enable them to compete with English houses that were manufacturing a lower class of goods. But, although the reduction effected for weaving a yard of cloth seemed against the interests of the men, the increased facility for producing a greater quantity was calculated to improve, rather than diminish, the value of their labour. The men either could not, or would not, see their own advantage; and, as is generally the case under similar circumstances of turn-outs, where vested rights are meddled with, the influence of the trade was brought to bear upon the men in this work, and a turn-out was the consequence. The folly of one body of men is frequently the means of bettering the condition of another; such was the case here, inasmuch as a number of weavers were brought over from England, who, for a time, filled the places of those who left. The old hands were not long in finding out the folly of their conduct; they are now nearly all returned to their employment, and, we believe, the Messrs Fry were much pleased to receive their old servants back again.

We have said that *tabinet* is a compound of silk and wool, the warp is of the former material, and the weft of the latter. In the finest fabrics there are from 3,000 to 4,000 threads in the warp. It will be observed, that there is a very considerable disparity between the thickness of the threads in the warp and the weft. While there may be 100 or even 150 threads in the space of an inch in the former, there will not be more than from 30 to 50 in the latter. This disparity between the two, gives the fabric the corded or luted appearance which constitutes its peculiarity. The manner in which the woollen fibres bring the silk into relief, confers upon it a lustre and beauty never seen in articles made of entire silk.

It may be noticed, that all the colours which are seen in the different styles of *tabinets* are dyed in the yarn. Plain *tabinets* are wove with weft of a uniform thickness, while the double and corded fabrics are made with a small and thick thread alternately. These latter goods have a beautiful luted appearance, and are exceedingly durable.

Watered *tabinets* appear to be very much in requisition, in consequence of their richness and beauty. The process of watering is exceedingly simple, when compared with the surprising effect it produces on the surface of the cloth. The operation of communicating the curious appearance watering gives to this fabric may not be uninteresting to some of our fair readers. We were informed, by Mr. Henry Fry, that this process, like many other valuable discoveries, was found out by accident. Many years ago, when the transit of goods had to be effected on pack-horses, or in lumbering stage wagons, a silk manufacturer in the North of England, while taking his goods to London, one of his bales got wet and heated; and the consequence was, when he opened it at the end of his journey, he found its contents beautifully watered. The merchant made up his mind that his goods were so much damaged that they would be useless stock on his hands. Many of the articles appeared to be very pretty; but it was more than enough for him, that they were not as they should be. After some reflection, he presented them

in the market, and sold them to even better advantage than if they had been in the original state. The gentleman went home with a new idea, and was not long in finding out a method to water his goods at pleasure.

The way in which this operation is performed is simply as follows :— When a piece of goods is to be watered, the cloth is doubled in two, care being taken to have the two parts as even as possible. Before the cloth is doubled, however, the right side is carefully damped with water, and, when folded, the wrong side is left out. After this, the folded cloth is passed forward and back again between a pair of rollers. The under roller is a metal one, and the upper is made of *papier-maché*. The metal roller is heated either by steam, or some other method, and when the cloth has undergone sufficient pressure with the required degree of heat, it comes out of the operation in a new character. We cannot say how the strange effect is produced, but it would appear that the fibres of the cloth, in a certain degree, displace each other ; this, along with the chemical action produced by warmth and pressure, may account for the change.

From the peculiar construction of tabinet fabrics, it will easily be seen that the manufacturers will have serious difficulties to contend with in applying certain classes of designs to their goods. In those fine sorts of silk and cotton goods, where the warp and weft are of equal thickness, and of the same material, no such difficulties exist. Whereas, the inequality of tabinet is such, that the design must always be made subservient to the number of shoots in the cloth ; it is, therefore, impossible to apply designs of a minute and complicated character to these goods in the same way they can be conferred upon fabrics of an equal texture. Notwithstanding this helpless state of matters, many of the designs applied are really beautiful, while the colours, in many instances, are gorgeous in their blendings. Many of the finest quality of tabinets are brocaded with gold and silver. It may be noticed, that these metals are not introduced into the cloth in the shape of tinsel. Whether gold or silver be used, the metal is passed through the rolling-mill and reduced to the thickness required, after which, it is cut into threads. Such goods as are brocaded with gold upon what is now called the Napoleon blue, have a really gorgeous appearance. Among people of good taste, however, these fabrics are looked upon as a species of barbarous finery.

Whatever improvements have been introduced into the manufacture of tabinet by the way of embellishment, and conferring variety by artistic designs, our opinion is, that the good old style is by far the most chaste. Whatever may be wanting in complicated designs in these fabrics, the loss, if it be one, is well compensated for in the infinite variety of tartans, checks, and stripes. These different styles enables the manufacturers to display any amount of taste in the arrangement and harmony of their colours.

We have observed, that the Messrs. Fry have introduced the fly-shuttle into their factory. When going through their works, we had an opportunity of seeing the capabilities of the old and new systems tested. In weaving plain fabrics, a man with a fly-shuttle will pro-

duce one-third more cloth in length than another who works with the old hand-shuttle. This disparity, however, does not hold good in weaving the more complicated fabrics. Indeed, we observed, in several cases, where the men were engaged upon the finer class of goods, with figured designs, that the hand-shuttle was preferred.

These gentlemen have long had another branch of this business exclusively to themselves. The class of goods we allude to are denominated *brocatelles*, and poplin damask. These fabrics are used for hangings, in much the same way as the ancient tapestry. In producing these fabrics, the manufacturer has an opportunity of bringing his artistic taste to bear upon them with more freedom than he can do with the tabinets. The designs for these goods are nearly all taken from the field of Flora; and as the fabrics require to be spread over much space, the whole of the patterns are large and bold. In *brocatelles*, the figured parts stand out in rich relief, and are therefore seen to the best advantage. In weaving, this class of goods are made in much the same manner as the tabinets, with this exception, that the shoots of the weft are formed of threads of two sizes; the one small, the other thick, in order to give them their beautiful corded appearance. These fabrics are much used for curtains, hangings, and upholstery.* There is still another branch of this business carried on in this factory upon a large scale. This is, in manufacturing linings for coaches, covers for seats, coach lace, and fringes. We believe the principal markets for these articles is England, Scotland, India, and America. Over and above the branches of trade we have noticed the Messrs. Fry carry on a large wholesale upholstery business, and are preparers of curled hair for the trade.

This house has been wedded to the general business many years. The present members of the firm succeeded the third generation somewhere about 30 years ago; and, as they have been successful, in more ways than one in their business, there is every likelihood of the trade being perpetuated in the family for generations yet to come.

It may be deemed somewhat curious, that the manufacture of tabinet in Ireland has been solely confined to Dublin, where it was first introduced. But, if we examine other branches of our national industry, we will find several trades and professions that would seem to cling with equal tenacity to their respective localities. The cutlery of Sheffield, the lace of Limerick, and the linen manufacture of the North of Ireland, are all firmly rooted, and nobody ever imagines any of them can be transplanted. We are not aware that there is any peculiar adaptability in Dublin for the manufacture of this fabric over that of several other places we could name. The same class of goods could be made equally as well in Manchester, London, or Paisley, as in Dublin. The fact is, large quantities of poplin (which is another name for tabinet) are made in England. The English manufacturers of textile fabrics, of late years, have all been drifting in one direction. A growing spirit of competition has produced a rivalry in the way

* Heraldic devices, coats-of-arms, and other designs, are frequently woven into these fabrics to order.

least likely to benefit the public. Instead of competing with each other as to who should produce the best quality of goods, their ingenuity has been entirely directed to making them out of the smallest quantity of material, in order to undersell each other.

The tabinet manufacturers of Dublin have seen the rock upon which the English makers have split, and they have wisely adhered to the good old-fashioned honest policy, of making their fabrics to wear, instead of being admired for their cheapness. It may be noticed, that if tabinet fabrics are not made substantial and of good material, they are decidedly inferior to silk or cotton goods at the same price.

At the present time, there are seven manufacturers in Dublin in this business. These houses may be classed as follows:—Messrs. William Fry & Co., Messrs. Pim, Brothers, Mr. Atkinson, Mr. Judge, Mr. Geoghehan, Mr. Danne, and Mrs. Moran. Each of these houses have their own special markets for their goods. The Pim, Brothers, are looked upon as the most enterprising commercial people in the city. They are by far the most extensive wholesale and retail merchants in Ireland. The business, in their warehouse in George-street, is conducted by the aid of two hundred and sixty men. Two hundred and twenty-five of these are boarded on the premises. There is one very pleasant feature in the social arrangement of this establishment; the young men who live on the premises have all private sleeping apartments. The hours of business in this house are well regulated for the health, comfort, and enjoyment of the servants. The establishment is opened in the morning for business at nine o'clock, and closed in the evening at six. By this arrangement, the young men have time both for relaxation and mental improvement.

In the tabinet business these gentlemen employ sixty men and forty females. They are also large manufacturers of grey calicoes. In this department of their business at Harold's-cross, they employ four hundred and fifty people. If we take the number of hands engaged in the wholesale and retail warehouses, the tabinet-workers, shoe-makers, spinners, and weavers, we find they give employment to eleven hundred people. A firm like this cannot fail to be of great service to the social condition of a large number of the inhabitants of Dublin. By employing their capital in reproductive labour, they are not only affording a comfortable living to a large number of the community, but they are also contributing to the material wealth of the city.

As tabinet manufacturers, we believe the Messrs. Pim stand deservedly high. They manufacture none but first class goods, and spare no expense in producing suitable designs for the taste of the age. We were told by one gentleman in the trade that the Messrs. Pim, some little time ago, produced from their looms one of the most magnificent female dresses ever presented to the public. We believe the price of the robe was somewhere about twenty guineas.

Mr. Atkinson is also another highly enterprising manufacturer in this business. At the present time this gentleman holds the highest civic position in Dublin, being the Lord Mayor (1857). We have been informed that Mr. Atkinson has taken considerable interest in the estab-

lishment of the Dublin school of design, and encouraging the pupils by directing their studies to subjects of utility. Many of the first class designs used by this gentleman in his fabrics, have been produced by the scholars in this establishment. Mr. Atkinson has not only been frequently honoured by her Majesty's commands, but he has been authorised to wear the royal arms in connection with his trade. Although this gentleman employs a considerable number of workmen as a tabinet manufacturer, it is a curious fact that the whole of his produce is sold in the retail market. In consequence of this peculiarity of his business, he is frequently favoured with orders for goods of a special make. While in his warehouse, we were shown several samples of goods most elaborately brocaded in silver, mingling with flowers of various hues. One very superb fabric in Napoleon blue, with the figures raised in gold, seemed surpassing rich. If we remember rightly, the price of this material was three guineas a yard. Amongst the fabrics brocaded in silver and gold, we were shown two designs that had been specially made for her Majesty. Of course, this class of goods are only for the select few who can afford to decorate their persons irrespective of the expense.

The retail places of business in this trade in Dublin, are characterised by a quiet aristocratic appearance. The fact is, their customers would appear to an observer to be like "Angels visits, few, and far between". The interiors of their shops wear the look of the most systematic order and cleanliness. The goods are all neatly folded up as if for a holiday inspection, and the young men behind the counters, are models of gentility and good breeding. Next to the highest class of jewellers, this business is decidedly the most aristocratic in its commercial character, of any in Dublin. But although an air of calmness and unbusiness-like repose hangs over these places, their owners are like anglers, who only bait for salmon! When they do make a sale, it is almost sure to be no two-pence halfpenny matter. Indeed, an order from a private family frequently amounts to a considerable sum. A very large portion of the business done by the houses we have named, is through orders from people who reside either in Great Britain or the Continent.

The three firms we have noticed, have all been awarded Prize Medals at the three Great National Exhibitions of London, Dublin, and Paris.

Although this business never can employ any great number of hands, in consequence of its limited consumption, it is nevertheless a very important feature in the commerce of the country, inasmuch as it holds the next first rank to the linen business, among her manufacturing productions.

While being shown through the manufacturing premises of Messrs. Fry, we entered into conversation with an old gentleman, who had travelled out of the eighteenth century, in connection with the tabinet trade. Upon our asking him about the relative condition of the business now, and at the beginning of the century?—His answer was, that trade was much better then than what it is now, both for the men and their employers. In cross-questioning the old gentleman, we

soon found that his pleasant reminiscence of the past, were like those of many whose heads are grey with years ; he had outlived all that was good and great both in men and things ! So far back as the year 1806, he observed, that there were then, at least, four hundred looms at work in Dublin. Comparing that number with those in operation now, he concluded that the trade must have been in a much more prosperous condition than at present. As an illustration of the happy condition of the workmen, he instanced two brothers that he knew, who had turned out one hundred and twenty yards of cloth in six days ! If we suppose the prices for weaving to have been much the same then as they are now, the two men would have been paid at the rate of one shilling and sixpence per yard at the least, the product of their joint labour, would therefore amount to nine pounds sterling. When we learn that these clever tradesmen took a fortnight to enable them to spend their hard wrought earnings in gross dissipation, and that it required other fourteen days to nurse themselves into working order, we will be able to appreciate the glories of the good old times ! In simply comparing the number of looms that are at work now, in Dublin, with those that were in operation fifty years ago, we should be very liable to conclude that there must have been a great falling off in the trade ? If we grant that there were four hundred looms engaged in the early part of the present century, and that there are now only two hundred and fifty, which we believe is about the actual number now at work, it will shew a falling off of one hundred and fifty. At the present time, the average number of yards produced by the men when at work, is said to be thirty for each individual, weekly. (There are plenty of men who will weave double this quantity). This would give a difference of 3,375 yards a week, being at the rate of 150,000 yards annually, and would cause a depreciation of 1,060*l.*, in the value of labour alone.

If this calculation was founded upon facts, instead of assumption, it would certainly show a very serious falling off in the trade. Our opinion, however, is, that there is actually more cloth produced with the smaller number of looms than there was with the greater. Our reason for thinking so is founded upon two circumstances ; the first is, that of late years there has been a decided improvement in the moral and social habits of the men : they are now more rational in their conduct, have less *false independence*, and are more regular in their application to labour. The reformation in the conduct and character of the employers has been equally great. It is a fact, that the majority of employers in Ireland fifty years ago were by far too important in their own estimation to attend to business in anything like the way commercial men do at the present time. Like their workmen, the old manufacturers in most cases attended to their business by fits and starts ; and whether they applied themselves to their manufacture at home or transacting business with their customers, the same spasmodic conduct regulated all their actions. We know it to be a fact, that large orders have been sent to Dublin manufacturers by first-class merchants in England, and that they were either too lazy or too independent to execute them ! A want of business habits and commercial

enterprise, and a come-day go-day sort of conduct, was the order among a large number of the commercial men of Ireland a few years ago. The fact is, there are still men to be found who cling to the old gin-horse system, and it would be as easy to remove the Hill of Howth as to inspire these people with correct notions in reference to the manner of doing business.

It is not many years ago when there was a large number of small manufacturers in the tabinet trade in Dublin. Generally speaking the men employed by these people led the most miserable lives imaginable. When a man's web was out of his loom he was allowed to rest both his limbs and his stomach for a most uncomfortable length of time before he was likely to be troubled with another. While the men were thus being drilled into the condition of walking gentlemen, their model employers were in the habit of advancing them small sums of money, by the way of subsisting money; it was therefore no unusual thing for the men's work to be fully mortgaged before they got it out! Under these circumstances it was quite an easy matter for a manufacturer to keep a number of looms, and advertise his commercial importance through his half-starved workmen!!

In the good old times, when the virtuous and patriotic middlemen could afford to decorate their wives and daughters in the most costly fabrics the Dublin manufacturers could produce, we have no doubt but the home trade was better than it is now. It is very probable that the sunny memory of those Halcyon days still linger in the recollection of some of the *wee* manufacturers who could not adapt themselves to the changing circumstances of the times.

The Dublin tabinet manufacturers, like sensible men, were wont to regulate their conduct by the maxim—"All work and no play makes Jack a dull boy." In the olden time, it was quite a usual thing for the employers at Christmas and Easter to close their places of business for a period of three weeks. How they managed to appropriate their time is no business of ours, but it must be evident that the above were seasons of happy relaxation, both for the masters and the men!

The present race of manufacturers in Dublin manage their business in a somewhat different style to that of their predecessors. These gentlemen have learned to consider that close application to business is not incompatible with their commercial dignity. The consequence is, that both their energies and capital are applied to their trade in the most systematic manner.

That the social condition of the workmen is changed for the better there can be no question. They are better housed, fed, and clothed; and, what is of no less importance, their moral conduct is decidedly better than that of their predecessors. Taking the working-men engaged in this business, in Dublin, as a body, they are said to be sober, honest, industrious, and highly intelligent. The fact is, we have rarely ever found a body of men so highly recommended by their employers, for general intelligence and good conduct, as we experienced in the case of the Dublin tabinet weavers. We have no doubt but that much of this pleasant state of things is owing to the judicious conduct of the masters; like begets like, whether in Dublin

or elsewhere. It is certainly a pleasing duty to chronicle the good opinions expressed by masters in reference to the conduct of their workmen; and we only wish we had more frequent opportunities of alluding to similar conduct among employers more generally.

In going through the factory of the Messrs. Fry, a workman was pointed out to us who was engaged weaving a figured tabinet; we were told that he could easily turn out five yards a day at 1s. 6d. a yard—2l. 5s. a week is certainly a very comfortable thing for a workman. We were informed, however, that there were men in the establishment who could make much larger wages than even that—indeed, we were introduced to one man who had wove fifty-two yards in one week. We believe the average wages made by the men in the first-class shops to be about 26s. a week.* From what we have said of the tabinet trade in Dublin, even confined as it is, it is of no little importance to the city in a commercial point of view. The splendid manner in which the goods are produced has been the means of conferring a special character, not only upon Dublin, but upon the country of which it is the capital. And as the greatest portion of the goods are sold in foreign markets, the business must of necessity add to the material wealth of the town, as well as to the prosperity of those engaged in it.

CHAPTER XIII.

THE LACE TRADE.

It would seem that there is a peculiar adaptability in the Irish females for those sorts of employment that require fine treatment and delicate manipulation. During the late meeting of the British Association in Dublin, a paper was read by a gentleman (we believe from Cork) upon the local characteristics of the female hand. This phrase may sound strangely in the ears of some of our readers, who are not aware that the formation of the human hand is subject to a considerable difference, arising from local influence. As an illustration of this fact, we could point to several districts where there is a marked difference in both the size of the feet of the females, and in the heads of the males. For instance, there are two counties in Scotland where the average size of the head is much larger than in the other districts of the country. And, if it were not making too free with the understandings of the ladies, we could name several divisions of Great Britain where the female superstructure rests upon a basis not to be questioned!!

The human hand is by far the most beautiful, (and if we may be allowed the expression) the most ingenious mechanical contrivance in connection with our bodies. It is formed of twenty-seven bones with

* We may mention that there are a considerable number of females employed both in the manufacture of tabinets, and in the coach-lace and fringe business. The wages of young girls average about 5s., and the women 8s. a week. A large portion of the lace made by the Messrs. Fry is used as trimmings for railway carriages. We were not a little surprised to observe that the lace weaving was by far the most laborious work on the premises.

numerous muscles, tendons, and sinews, the whole of which are under the immediate control of the will. But it is in the arrangement of the nerves at the ends of the fingers by which the all-wise Creator has given to the hand its truly surprising character! The fingers may be looked upon as so many telegraphs always ready to communicate their own impressions to the mind. Indeed, it is a fact worthy of notice that many of the most pleasurable sensations of our lives are owing to the peculiar delicate organisation of the papilla at the ends of our fingers.

Those people who are endowed with just perceptions of form, combination, and arrangement, by which their minds receive a strong mechanical bias, have, generally speaking, an extraordinary power of manipulation. From this, it would appear that the character of the mind exercises a considerable influence over the mechanical adaptation as well as the nervous susceptibility of the human hand.

In the paper above alluded to, it is stated that the females in the south of Ireland are noted for the singularly beautiful form of their hands. We have no doubt, if the truth were known, that the same symmetry extends to their understandings! The object the gentleman had in view in reading the paper before the association, was to prove that the expertness acquired by the ladies in the south of Ireland in fine sewing and lace-making, was owing to the perfect organisation of their hands.

About thirty years ago, the manufacture of lace in the United Kingdom was, in a great measure, confined to the neighbourhoods of Nottingham and Honiton. The lace made in these places was much inferior to the same class of goods made in France. In this we allude more particularly to the taste displayed in the beauty of the designs incorporated into the French lace, rather than of its superior durability to the English manufacture. We have already remarked, that the principal source of in-door occupation for females in Ireland was formerly that of spinning linen yarn. Very fortunately at the time when that source of employment was about being transferred to the steam-mills, other kinds of female industry were being introduced. We have noticed the introduction of sewed-muslin and shirt-making into the north of Ireland by Glasgow firms. We now beg to call the attention of our readers to a different branch of female industry that has lately spread itself over a large portion of Ireland, but more particularly in the south and west.

As a short notice of the lace trade cannot fail to be interesting to our readers, we will therefore endeavour to lay before them its commercial origin and progress in Ireland, with a description of its manufacture.

In 1829, a gentleman of the name of Charles Walker, opened a place of business for the manufacture of tambour lace, in Limerick. Originally, Mr. Walker was from Nottingham, but had removed to London, where he carried on the Nottingham trade for some time with considerable success. It may seem strange at first sight, that a man who was doing well in London, should have removed to an out of the way place like Limerick. And more particularly when it is

known that he was about opening up a new branch of industry, where the people may be supposed to have been entire strangers to the operative part of the business. Mr. Walker knew perfectly well what he was doing in his new speculation. He was aware that although the lace business had never been prosecuted commercially, as a trade, there was scarcely a young girl in the south of Ireland, who had not learned it, either as a pastime, or a part of her domestic education. It may appear somewhat curious, that such a refined branch of female industry, should have existed in a country where the habits of the great body of the people were so primitively simple, as they must have been in the early part of the present century, in Ireland.

Strange however as it may appear, the making of lace has been a genteel species of female industry in the south and west of Ireland, over a period of four hundred years. It is said that the art of lace-making was introduced into the west of Ireland by a colony of Spaniards, and that the Spanish ladies taught the native females. Whether this is an historical fact or not we cannot say. It strikes us very forcibly that a knowledge of lace-making in the south of Ireland, must have, in a great measure, been owing to that class of ladies, who had retired from the world, in order to devote their lives to penance and works of mercy. We know that within the last ten or fifteen years, the nuns in the south of Ireland, have done much to benefit the condition of the humbler classes of female society. In whatever way a knowledge of the art of lace-making found its way into Ireland, is a matter we must leave to those who have better means for historical research than we possess. In the meantime we may mention, that while in Dublin, we were shown a piece of lace, whose history could be traced over four hundred years, and was said to have been produced by a lady in the west of Ireland. We were told by the lady, in whose possession it was, that the secret of making lace in the manner in which it had been done, was now unknown. What surprised us most in viewing this curious relict of olden times, was, how such a perishable article could be preserved in such a state of perfection for such an extraordinary length of time.

Tambouring may be said to be the most simple process of lace-making. The foundation of this class of trade is Nottingham net, and the pattern is effected by a loop-stitch. A great variety of articles of female dress is made of this material, some of which are very beautiful in design and finish.

The next class of lace introduced into Limerick, was by a Mr. Lloyd; this is called darning or shaded lace. The foundation for this is the same as the tambour, but the method used in working in the designs, is considerably different. The shading is done by using threads of different sizes, and the effect produced is much like what we see in the skeletons of leaves. Many of the patterns worked in this sort of lace have a beautiful rich appearance. Both these laces are worked in frames. The designs are drawn or printed by the lithographic process on paper, when required for use the design is attached to the under side of the net, where it is traced and shaded by the operator. As the work on the frame continues to be finished,

it is taken up on a roller connected with the frame, and so continues until the piece is finished. It may be noticed that the darning process is done with a common sewing-needle with a blunt point.

The method of manufacturing black lace in Limerick, is done in the same way as the above; the foundation, however, instead of cotton, is made of the best quality of silk. The difference between making the French and Limerick black lace is very considerable, the one being made on the cushion without a foundation, while in the other the pattern is only worked into the net.

There are two kinds of lace, of French origin, that have lately been introduced into Ireland by the Messrs. Forest & Son, of Grafton-street, who have their factory in Limerick. These are denominated *Guipure* and *Appique*. Both these laces are gorgeously rich. A person unacquainted with the way in which the work was done, would imagine that the designs were formed by an elaborate system of braiding upon a lace foundation. In the first instance, the foundation of guipure lace is fine muslin. In the process of making, the muslin is attached to a frame, the design to be worked in is applied, after which both are covered with a fine gauze paper in order to keep the work from being soiled. When the pattern is finished the whole of the muslin is carefully cut away, with the exception of the part that shows the design. The only difference between guipure and appique is, that in making the latter there are two foundations instead of one. In making appique lace both muslin and net are used, the pattern is worked in, in the same manner as the other, and the muslin cut away just as in the above. Both these laces are splendid specimens of female ingenuity, patience, and industry.

Both guipure and appique are frequently taken for point lace, but the difference in their manufacture is very great. The design for point lace is drawn on parchment and the lace is made upon it with the needle.

We believe that the manufacture of this beautiful species of work was introduced into the south of Ireland a few years ago by some ladies who belonged to the Sisters of Mercy.

We are not aware whether there is any of the old cushion lace made in Ireland at the present time, but should think not. It appears to us that this kind of lace has been superseded in a great measure by the modern system of crocheting. We were told by a gentleman in the trade, that there are more different kinds of lace made in Ireland than there is in any other country in the world.

The Messrs. Forest & Son employ upwards of two thousand females in Limerick. These gentlemen are said to have introduced many improvements into the manufacture of lace. Their warehouse in Dublin is like a fairy palace. Many of the dresses exhibited in this establishment are well calculated to arrest attention. The windows in this house must have a tantalising attraction to vast numbers of the lovely daughters of Eve, who can only look at them and sigh.

Mrs. Allen, who is authorised to wear the Royal Arms above her door in Grafton-street, seems to share the lace business in Dublin with the Messrs. Forest. While we were being shown through the ware-

house of this lady, we saw a piece of guipure lace that cost thirty guineas for the mere working. It was certainly the most elaborate piece of needlework we ever beheld. It is really surprising to observe what an immense amount of capital can be sunk in this business in such a small amount of material. We saw lace at a guinea a yard that would not weigh more than half an ounce. Like many other articles in commerce, the whole value of lace is in the labour expended upon its manufacture.

The manufacture of lace in Ireland is managed much in the same way the linen yarn was from thirty to forty years ago. Large numbers of females in the rural districts occupy their leisure hours in lace or crochet work; and when a quantity is finished, they dispose of it as best they may. Some girls who are clever in producing good patterns or new styles, make very fair wages. The greatest portion of the work done in Ireland is produced in schools and other public institutions. There is also a considerable quantity made in the nunneries that are scattered over the southern division of the country. The wholesale lace merchants in London and the other large commercial towns in the country send their buyers through the lace manufacturing districts of Ireland, who purchase what they require from the makers. There is one lady in Clones who employs several thousand girls. When the trade was good, in 1856, she had six thousand females at work. There is another lady in the west of Ireland who is said to employ a number equally as large.

Like almost all other species of female labour, the remuneration for lace-making is very small. Bad as it is, however, it is said to be much better than the sewed-muslin business. The average wages of girls who are in constant work, is said to be about four shillings and sixpence a week. This may be looked upon as a low figure; but we believe the average wages of those females who are employed in the sewed-muslin, is under two shillings and sixpence a week. There is one circumstance connected with the lace business that is much in its favour. A large number of the females who do this sort of work, blend it with their other domestic labours. It will thus be seen that although the work is only indifferently paid, it is yet of great advantage to a large number of the people, particularly in the rural districts where female labour is generally very scarce.

From what we have been able to learn, there cannot be less than one hundred thousand females employed either directly or indirectly in this branch of national industry. The shirt-making and sewed-muslin trades will furnish employment for other sixty thousand. If, therefore, we take the average wages as above stated in these three branches of labour, the weekly disbursements will amount to 18,000*l.*, being at the rate of 1,184,000*l.* annually. The annual expenditure of so large an amount of money cannot fail in effecting a considerable improvement in the social condition of a great number of the people.

Like all fancy trades, the lace business must greatly depend upon a prosperous condition of society. The field for this business must have been greatly extended during the last twenty years. In our remembrance, lace, like gold watches, was only comeatable by the select few.

The case, however, is very different now. From the duchess down to the dairy maid, and from the wife of the merchant prince to the mill girl, lace and crinolines are made to decorate their lovely forms, and exercise their bewitching influence on the male portion of creation. We know that lace is calculated to add a dangerous effect to female charms in the eyes of those young Lotharios who still worship at the burning altar of love. But the case is very different with the generality of those gentlemen whose love has been tamed down to mere friendship. Men, who value women for the beauty of their minds, instead of that of their persons, are not much enamoured with the inflated beauties of female fashion in dress as it now exists. We often think, when we see some of our modern *belles* moving about with the value of small estates upon their angelic persons, how much more lovely they would appear in the eyes of the men, if their *frames* were made a little more subservient to their pictures! We believe there never was an age in which the female form was so much distorted and outraged by the tyranny of fashion, as at the present time. The love of finery and ostentatious display, has lately become a species of insanity with a large portion of female society; and, it may be said, that all ranks are, less or more, inflicted by the disease.

We often hear philosophical fathers of families grumbling at the "damnation of the expenses" entailed upon them by their wives and daughters. Why, the fools, they are themselves to blame for the evil they so loudly declaim against. If men will make dolls of their wives, and advertising puppets of their daughters, we should like to know who are to blame in the matter? The consequences arising from the present fashion in female dress, are much more serious than most people think of. The expenses affect the pockets of husbands and fathers, and, through them, the pockets of their creditors. But the worst feature in the matter is, the influence the love of dress exercises over the destiny of a large number of females in humble circumstances. We know it to be a fact, that hundreds of girls are continually being transformed into nymphs of the *pave* by their insatiable desire for fine clothing. This evil has lately become a national reproach; and, we feel satisfied, that its present alarming condition is, to a great extent, owing to the rage for female finery.

We have no doubt but the Romans acted wisely in passing their sumptuary laws. Extravagance in dress, when it arrives at a certain crisis, cannot fail to be a national evil; and we are sure that the sober thinking members of society are sensible that we have arrived at that unenviable condition.

It is said that Brother Jonathan advertises his pecuniary respectability by an elaborate system of decorating his wife and daughters in the most costly fabrics. Whatever Jonathan may do in these matters, we think he will find some difficulty in outraging common sense, in a greater degree, than is done by the "old folks at home."

Our notice of the lace business will, we have no doubt, be interesting to many of our readers. Having commenced the chapter with an essay upon hands, our readers can scarcely think we have gone much a stray in winding up the subject with a little head work. And if

we have offended the ladies, it was done out of pure love for them ; for whether the dears are dressed in " silks or russet gowns," they can never cease to claim our love and veneration. Short petticoats and long lives to them all.

There are four lace manufacturers in Limerick, several in Cork, and about half-a-dozen in Dublin. It is said, that there are about two hundred different kinds of lace made in Ireland, including Brussels, Valenciennes, and Honiton.

CHAPTER XIV.

BOG-OAK.

MANY thousands of years must have passed over the changing face of the world since the Irish bog-oak was submerged beneath her mighty masses of vegetable soil. What a strange history some of the old fallen monarchs of the forests could relate if they were endowed with speech, reason, and memory. Beneath their shade, the *Mastoden* and *Megatherium* fought their leviathan battles myriads of years before the lion was sent forth with his kingly attributes to rule over the middle state of the animal existence.

The bogs of Ireland, like the coal formations in Great Britain, furnish us with consecutive pages in the world's history, which remind us of her wonderful changes, convulsions, and extraordinary chemical operations. In them we have the organic remains of vegetable life, long anterior to the time when man stood erect on the world as supreme lord of all below. Before the primæval forests cast their umbrageous shadows over the landscapes of the infant world, billions and tens of thousands of millions of billions of *lime manufacturers* had performed their part in the preparatory economy of the earth's surface. The great *Saurian* family, too, had done their useful mission in creation, and had passed away. Then we have the mighty forests darkening the great plains of the world, with their hugh limbs and varied foliage preparing their wonderful stores of carbon for the use of the human family in after ages.

How beautifully men's wants have been anticipated and provided for in the stupendous bogs that lie scattered over the whole of Ireland. From time immemorial, the homes and hearths of the Irish kelts have been warmed by her vegetable wreck.

The rich and beautiful oak found in the Irish bogs, has been long highly esteemed for its almost jet black, and the exceeding fineness of its grain.

As carving in bog-oak has lately become a business of consequence in Dublin, some little notice of its history and character may not be without interest to our readers. The fact is, every new species of industry is of more or less importance to the community in the locality in which it exists. For some time past there are few strangers who visit Dublin without purchasing an Irish *souviner*, in the shape of a piece of carved bog-oak that has been fashioned into a beautiful ornament in a highly artistic manner.

The history of this business is of very recent date. Some years ago, a person of the name of Collins, was residing in the district of the far-famed Killarney, who was then making a living for himself and family by carving articles of an ornamental character in the Arbutus Wood. As the sale of the goods made by Mr. Collins depended almost entirely upon visitors in the summer season, his business was a very precarious one.

About ten years ago, Mr. Collins was induced to remove his family to Dublin, where he continued to carve articles from the same wood he had been accustomed to. In consequence of this wood being variegated, it was more useful for cabinet purposes than for small ornaments. Mr. Collins had displayed much taste and artistic skill in constructing various little ornaments, both in wood and stone. Shortly after he came to Dublin, he found that by using bog-oak he had a much wider range in which to exercise his talent. It is curious to observe how a business grows, and how the manufacture of one article leads to others where there is sufficient creative power.

The beautiful jet black of the bog-oak and its susceptibility of taking the finest polish, soon enabled Mr. Collins to make a variety of articles which immediately found favour with people of means and taste.

We believe this gentleman's fortune was like that of many others, who have from time to time introduced new branches of industry. After having opened up a business in which several persons have enriched themselves, he died a poor man.

During the Industrial Exhibition in Dublin this business received an impetus, which was the means of investing it with a new character. For some time before that event, a large and valuable collection of goods were made for the occasion. Many of these articles were of much artistic merit, as well as being intrinsically valuable for their mountings.

That, however, which was most calculated to bring these goods into public repute, was the patronage of Her Majesty and Royal Consort. Both the Queen and many of the nobility were decorated in bog ornaments during their visits to the Exhibition. Since that time, the business has steadily increased; and the various classes of goods are in demand, not only in Great Britain, but in almost every part of the world.

When in Dublin, we had the pleasure of examining the various descriptions of goods manufactured by Mr. Samuel, in Nassau-street. The number and variety of articles in bog-oak produced by this gentleman to be fully appreciated must be seen. Before going through his establishment, we really had no idea that so much artistic taste and talent could be developed to such a surprising extent upon wood!

The following are a few of the articles carved in bog-oak:— Bracelets, in various designs; brooches, many of these ornaments are made to represent old ruins, landscapes, public buildings, and gentlemen's mansions; paper-knives, many of which have historical subjects elaborately carved on their handles; inkstands, in all manner of shapes; neck-chains, in every possible design; bookstands, richly carved in

gothic style; card-cases, with splendid pictures in relief; shirt-studs; pins for shawls and scarves; vest buttons; grotesque figures, in the Irish costume; watch-chains, in great variety; elastic serpents, in all sorts of coils; heraldic devices; Irish round towers; birds and quadrupeds, and all sorts of architectural designs. Many of the above articles are studded with Irish diamonds, emeralds, rubies, and other precious stones, and mounted in native gold.

Mr. Samuel appears to do a large trade in the manufacture of bog-oak articles. While the British Association was sitting in Dublin this gentleman not only sold a large quantity of these goods, but he was favoured with numerous orders for articles of various designs of a special character. We can well imagine the gentlemen of the geological section wishing to possess *souriniers* of this description, which would not only be esteemed as things of art, but might be produced as living proofs of their favourite science.

From five to six years ago this business was not worthy of notice. We believe there are now five manufacturers who are each doing an excellent business. At the present time there are travellers in the trade who scour both the whole of Great Britain and the continent. It strikes us very forcibly that this business must injure the Scarborough jet trade very materially. Although jet is easily wrought into articles of almost any design or pattern, its liability to break and lose its brilliant polish makes it much inferior to bog-oak. Ornaments for personal decoration made of the latter, may be used in the most careless manner without being injured or losing their brightness; and when either the studs or mounting gives way, they are easily replaced by an ordinary jeweller.

The number of artists employed in this business, in Dublin, at the present time, is said to be between sixty and seventy. We have been told that some of the first class workmen can make their four or five pounds a week. Those employed in making inferior or low priced articles, can make from twenty shillings to two pounds a week. The most valuable and best finished class of articles we observed in Mr. Samuel's place of business were of a very superior order of workmanship, both in design and execution. Some of the architectural carving indicated beautiful and minute manipulation. The class of articles, however, that are articulated appeared to us to be of the most ingenious construction. Amongst these are chains both for ladies and gentlemen, and serpents, in spiral coils—the former are quite pliable, and the latter jointed on elastic steel-wire. The principal beauty of both these classes of articles consists in the ingenious manner in which they are jointed. The jet black of the oak admits of a great variety of mounting, particularly with light coloured stones. Nearly all the first class ornaments of female wear are studded with native stones. Among articles of this description, the different sorts of bracelets admit of the greatest amount of ornamentation.

We do not imagine this business can ever come to anything of importance in a commercial point of view. Being purely a fancy trade, it will always be limited. At the present time, it will give a comfortable living to about one hundred families; and what is of no small

consequence, it is the means of producing a considerable amount of artistic talent, and drawing public attention to the country. If Ireland continues to attract strangers to visit her natural beauties in anything like the way she has done of late, this business must necessarily increase for some time. There is also a possibility that other branches of trade may spring out of it of a more utilitarian character.

While in connection with this subject, we may mention that there has lately been another branch of the wood business introduced into the neighbourhood of Dublin. Three ladies of the name of Grierson, who presently reside in the suburban village of Rathgar, have long taken a lively interest in the well-being of the humbler classes in their own neighbourhood. Having travelled a good deal on the continent, the Misses Grierson were careful in observing the industrial habits of the people in the different countries through which they travelled. While in Sweden, they had an opportunity of seeing the manner in which the natives occupied themselves in carving and turning in wood. One of these ladies being endowed with an excellent artistic taste, conceived the idea of introducing a knowledge of wood carving and turning among their own tenants. The residence of these people is on the estate of the Misses Grierson on the northern slope of the Dublin mountains, amidst some of the most beautiful sylvan scenery in Ireland. We have seen several specimens of the work turned out by Miss Grierson's pupils, and we must confess we were not prepared to see such splendid artistic productions from the hands of mountaineers. The articles we saw were purely of an ornamental character, the whole of which were embellished with representations copied from the wild flora of the native glens. The peculiar beauty and chasteness in the arrangement of fruit, flowers, and foliage gave proof of a highly cultivated mind in the designer.

The goods produced under the directing care of the Miss Grierson who attends to the operative part of the business, are not sold in open market. Several specimens of these articles were exposed in the Dublin Exhibition, and drew the attention of her Majesty, who not only expressed her high approval of them, but manifested the interest she took in them in a more substantial manner. Up to this time, we believe the whole of the goods that have been made, have been disposed of to private individuals.

We are of the opinion that female labour could be applied to this business with much useful effect. Instead of the trade being confined to the manufacture of mere things of ornament, many useful domestic utensils could be made at a cheap rate, which would find a ready market among the humbler classes of society. Under any circumstances, these ladies deserve much credit for what they have already done.

CHAPTER XV.

MONSTER HOUSES.

It may be considered as somewhat singular that so few people succeed in the various branches of manufacture in Dublin, when compared with the successful enterprise of the same class in Belfast. Looking at the city, and the numerous facilities both the town and suburbs offer for manufacturing purposes, one would be led to suppose that it could easily be made a central seat of native industry. That this will be the case, we have no reason to doubt; and, perhaps, it is as well that the foundation of her commerce and manufacture should be built up by slow degrees!!!

Although Dublin has heretofore lagged behind as a place of manufacture, she presents a somewhat peculiar anomaly in the character of her Mammoth retail establishments. At the present time there are a greater number of large places of business in the drapery line in Dublin, than are to be found in any other seat of commerce in the United Kingdom; several of these establishments stand out in bold relief for their gigantic proportions, and the completeness of their arrangements. If our memory serves us rightly, these places of business may be named in the following order:—Messrs. Todd, Burns, & Co., Cannock & White, M'Birney & Collis, Pim, Brothers, & Co., M'Sweeny & Delany, Scott & Bell, and Brown, Thomas, & Co. We believe that these seven houses employ at least fifteen hundred young men and females on their premises.

We have already noticed several large houses, both in London and Glasgow. There is only one house, however, that exceeds the largest of the Dublin establishments in magnitude, and that is Shoolbred's, in Tottenham-court-road, London.

The first of these modern bazaars in the City of Dublin, was established on Wellington-quay, in the year 1827, exactly thirty-one years ago, by the firm of Harvey & Co., (now Scott & Bell). These gentlemen inaugurated the new system of ready money, and no abatement in price. There are many lively anecdotes told about the country people, when visiting this house to make purchases of such goods as they required. At that time, it was no unusual thing for a would-be customer to offer one tenth of the price asked, which was a significant proof of the dishonest and highly disreputable system pursued by the old fashioned traders. The fact is, this method of deception is not yet exploded in the country towns of Ireland. While conversing with a wholesale gentleman in Dublin a short time ago, he mentioned the circumstance of a retail dealer in the north of Ireland, who had lately told him that he frequently got more for his goods than he intended to take! The reason why it was so, in stating the price of any of his articles, he was sure to leave a goodly margin in order to give

the customer an opportunity of screwing him down to a reasonable profit. But when he had honest confiding people to deal with, they were sure to be skinned. Although the Messrs. Harvey & Co. would be certain of the patronage and support of the more respectable members of society, we have no doubt they would have a good deal of up-hill work before they overcame the prejudices of the general public. The ultimate success of this house soon invited the enterprise of other firms in the same line. The whole of these establishments are strictly conducted upon the modern principle of small profits and quick returns.

These huge establishments have produced very important changes in the commercial character of Dublin. The majority of the small dealers look upon them as dangerous monopolies; they argue, that while members of their own class are being ruined by their operations, the public are not benefited by them.

During the last twelve months, several meetings have taken place, at which the evils of the monster houses have been freely discussed. Public sympathy has been appealed to, and the social and commercial disadvantages consequent upon such monopolies have been exposed according to the point of view in which the speakers were enabled to observe them. Whatever argument the Dublin shopkeepers could advance in their cause, we imagine it would be like a double-edged sword, which could be made to cut either for or against. The dealers themselves, in our opinion, would be the last to ignore their own professions, inasmuch as every man among them possessing sufficient independence, would be sure to take his money to the best available market irrespective of the wrongs or opinions of others.

It is said that the large houses have absorbed the business formerly done by many of the small dealers in the city, and have, therefore, brought ruin upon numerous families who otherwise would have been enabled to have held comfortable positions in society. How far this statement may be true, we are not in a position to say; but, so far as our own experience is concerned, we should say that there are as many small dealers in Dublin at the present time, as there was before there was a single monster house in the city. We think there can be no question of the fact, that instead of the large houses swallowing up the business of the small dealers, they have made, to a considerable extent, a new trade for themselves.

Some years ago, before the railways came into operation in Ireland, there was very little business done in the wholesale drapery trade in Dublin. The case, however, is very different now; inasmuch as the majority of the large houses at the present time are doing extensively in the wholesale line. In reference to the retail character of these houses, we may observe that each establishment has become, as it were, a magnet of attraction by which the country people are drawn into town, who otherwise would spend their money in the provinces. The altered tastes and circumstances of the Irish people have also contributed to the support of these houses in no small degree. So far as we have been able to learn, the small dealers in Dublin have themselves been instrumental in the establishment of the large houses.

We have already remarked, that the Dublin shopkeepers, when they had the retail business in their own hands, were by far too independent and genteel to ply themselves to the vulgar duties of shop-keeping. Their aristocratic notions of civility and good breeding would not allow them to ally either the one or the other with their business. They had no inclination to unbend their haughty stiffness of manner to suit either the taste or the convenience of their customers. Indeed, it was no uncommon thing for the shopkeepers to look upon their constrained attention to their customers as a lowering of their dignity ; and, instead of receiving the patronage of the public as a favour, they considered the obligation to be the other way. The fact is, this old-fashioned custom has not ceased to regulate the conduct of many of the small dealers even to this day. It is still usual for some of these merchant princes in miniature, when a customer enters their places of business, to send their interrogations in full voice out of their little snug sanctums to learn what the visitor wants—ere they give themselves the trouble to move !!

Let us see how the case stands with the large houses, and in what manner the public are interested in their existence. Every one of the large establishments in Dublin are divided into a certain number of departments, corresponding with their various branches of business. Each department is under a separate management, and the person in charge is held responsible for its being profitably conducted. Whenever it is found that a department is not managed to advantage, the person in charge is either discharged or removed to some other situation. The buyers in the different departments are sent to the various markets in England, Scotland, and France, once a month. In these commercial missions the buyers are obliged to act upon certain uniform conditions, so that they can never exceed their duty in making unnecessary purchases. By going to market in this regular manner they are able to observe both the signs of the times and the changes in styles and fashion. By this means the stock of goods in the different departments are kept fresh and new, which is rarely the case in small places of business.

It may seem strange to the uninitiated to learn that many of the large houses are able to supply their retail customers with goods at a cheaper rate than they could have them at from the manufacturers themselves. Paradoxical as this may appear, it is perfectly true. Men who possess available cash seldom require to travel out of their way for bargains.

It is not unfrequently the case that manufacturers are obliged to obtain ready cash at considerable sacrifices, in order to relieve themselves from difficulties of a temporary nature. In this case, what is one man's loss is another man's gain. Every man who is at all conversant with mercantile affairs must be aware that numbers of people engaged in trade are continually tripping. Under such circumstances, their goods are soon made to change hands ; and although the large and respectable houses are above "selling off bankrupts' stock at alarming sacrifices," they can dispose of such goods by other methods equally suitable to their interest, and that, too, without compromising

their respectability. That certain classes of the retail dealers in Dublin have to some extent suffered by these gigantic establishments, there can be no question; but it is certain that the small dealers—both in Dublin and elsewhere—have always laboured under the same sort of grievance. It may be taken for granted that the Minnows will always be liable to be swallowed up by the Tritons; and let us think or say what we will about right, might has a law of its own, which all must succumb to in one shape or another.

There are other considerations connected with the large retail houses in Dublin beyond those of cheapness, choice, and fixed prices to attract the public. The whole of their interiors are fitted up more like eastern palaces than warehouses for the sale of merchandise. In some of them the decorations and ornamentation are both elaborate in detail and beautiful in design and finish. The fact is, the tales of the *Arabian Nights*, in which the splendour and magnificence of Royal halls dazzle the imagination, are eclipsed by the rich and gorgeous finery stored in these surprising bazaars. The genii created by Pope in the *Rape of the Lock* were not more active and attentive in the performance of their duties, than are the ministering spirits behind the counters of these fairy palaces. Every department has its presiding geni, with subs to obey his behests. The shop-walkers, like as many masters of the ceremonies, receive their fair customers with the refined gallantry of a D'Orsay, and conducts them whither they wish to go.

One particular feature in these houses is especially worthy of notice. Their whole routine of business is characterised by the order and regularity of well-appointed machinery, and the work of three hundred people is done with the most systematic precision. Generally speaking, the men in these houses have passed through a very different training to that experienced by the majority of small shop-keepers. The salesmen must not only be well up to their profession, but, as a necessary condition, they must have had a liberal education; and above all, they must have the rust of vulgarity rubbed off them. When the young men in these houses open their mouths in the way of business, it must be done according to rule, and when they address a customer, it must be in language suitable to the character of the person before them. More than this, their faces are taught to wear expressions of gravity or smiling blandness, as the circumstances of the case may require.

The conditions by which young men in large drapers' establishments hold their situations are not a little calculated to sharpen their wits; these, however, being matters connected with their own interest, the public would neither be amused nor edified by a knowledge of them.

There is one circumstance connected with the conduct of some of the young gentlemen behind drapers' counters worthy of a passing remark. Some of the knights of the yard-stick, while learning the polite code of genteel civility, have gone a long way beyond the limits assigned by Cocker, and when on duty, instead of acting the gentleman, they become fawning puppies. The manner in which

some of these men tease and importune females with grimace and distorted civility, is frequently both annoying and extremely painful to ladies with minds above such impertinent attentions. As an extenuation to this sort of conduct, it must be admitted that there are a large number of females who encourage young men to make fools of themselves by their love of flattery and servile attention. These small matters are inseparable from a system where there are so many temperaments to act and be acted upon. It may be observed, that the great majority of salesmen in these establishments are not only well-conducted, but they are intelligent and steady in their habits. One thing is certain, that they all require the virtue of patience in no ordinary degree. Many of the ladies, who are in the habit of exhibiting their lovely forms in these large houses are so much absorbed with ideas of their own little importance, that they really have not time to consider the interest of any other human being in the world. It is astonishing to observe how much labour half-a-dozen of your first-class shopping angels can create in a draper's establishment during a single visit. Although the salesmen are obliged to toss, tumble, and maul their goods about for hours together, without profit to their employers or credit to themselves, they must still look cheerful.

Nearly all the young men employed in the Dublin houses are boarded and lodged on the premises. The hours of business are from half-past eight in the morning to six o'clock in the evening. The domestic regulations are necessarily stringent. Unless liberty is sought every man must be in the house by eleven o'clock at night. Their comfort is well attended to, and those among them who have any desire for mental improvement, have numerous means offered them for that purpose. The whole of these houses are furnished with excellent libraries, and well supplied with all the best periodicals and newspapers of the day. Proper moral discipline is maintained by the constant surveillance of different degrees of rank; and we have reason to think these places are managed more with a desire to promote the personal comfort of the men, than with any view of carrying out a narrow system of economy.

The financial arrangements of these houses are also complete in their kind. The drawings of each department are noted every night, and when a member of the firm in any of these houses examines the business of any day, he can put his finger upon the drawings of any man in the establishment. The cash taken each day is deposited at bank hours on the following morning, and their system of book-keeping is simplified by a balance being struck once a month.

Capital is not the only requisite necessary to the successful management of one of these gigantic concerns. Unless a man is possessed of knowledge, prudence, judgment, and industry, he would very soon find that the balance would be on the wrong side of his ledger. In the management of one of these houses, he must be able to know that the goods purchased by his buyers in the different branches of his business are value for his money. More than this, he must be able to keep a good look out to see that his buyers are not sacrificing his interest in order to promote their own. It is equally necessary that he should

watch over the morals of his salesmen with care and vigilance, to prevent them becoming partners both in his profits and stock-in-trade.

These considerations will prove that the class of men at the helm of affairs in large commercial undertakings require to be persons of no ordinary intelligence, energy, and shrewdness. The fact is, if we take the conductors of these concerns as a body, they are just the sort of people who would successfully battle their way in any position of life. It is not, in the nature of things, that the great body of small dealers should ever be anything else. Neither is it possible to keep men of talent and strong will from running ahead of the mob in the race of commerce. A mercantile gentleman in Dublin, in the drapery trade a short time ago, took upon himself the duty of proving the monster houses to be great social evils. We have no doubt but he was fully convinced of the truth of his premises, but when we know that this gentleman occupies a small monster house, and that he employs three or four men in his establishment, and that consequently his mercantile position is many degrees above numbers of his fellow traders. It will be evident that his argument would lose much of its force. How true it is that men are frequently inconsistent in consequence of being led by their feelings instead of their judgment. The class of dealers who are struggling in positions beneath this gentleman, have the same cause to call his conduct in question, as he had to declaim against those who are above himself! There always have been degrees of comparison in the social positions of commercial men, and we are not aware that one portion of society has any right to place a limit to the circumstances or condition of any other.

It is a matter of the greatest possible consequence to the commercial character of this country that large mercantile firms should conduct their business upon sound principles of honour and honesty. In many cases their credit is unlimited. This confidence arises from their supposed security; and when they do break faith with their creditors, ruin is sure to follow in the wake of their imprudence or dishonesty to many hard-working and deserving people.

In concluding this chapter it may be mentioned that there is scarcely a single man who is at the present time a member of any of the large commercial firms in the United Kingdom, that has not made his way up from the ranks by his own personal talent, tact, and business habits. All these men are public benefactors, both for the manner in which they employ their capital, and the healthy influence their example must have upon the conduct of a large portion of the community. In fact, it is to the energy and well-directed enterprise of such men as these, that this country owes her commercial greatness and material wealth.

CHAPTER XVI.

THE WINE TRADE, &c.

The wine trade in Dublin is by far the most important branch of her import business. The bonded stores in connection with the Custom-house, are well worth a visit by all who wish to see the lions of modern *Eblana*. The wine vaults are immediately under the tobacco bonded store. The latter warehouse is, as we have before stated, the largest building of the kind in the United Kingdom. At the conclusion of the Crimean war, seventeen thousand soldiers were comfortably drilled in *jau* exercise in this building over a splendid dinner.

The Dublin wine vaults are said to be the most perfect of the kind; their temperature is the same in the coldest day of winter as it is in the hottest day of summer. Indeed, there are no wine vaults in the United Kingdom, out of London, to be compared to them, either in spaciousness, or in the perfection of their ventilation. At the time of our visit, we were informed by the officer in charge, that the vaults contained ten thousand pipes of wine. A very large portion of the wine in bond was said to be of great age; to us many of the pipes seemed hoary with age, and were blue-moulded from long imprisonment.

The brandy vaults occupy the basement of a building that runs parallel to the tobacco store, and is little inferior to the wine stores, either in size, arrangement, or ventilation, and contain no inconsiderable quantity of that material.

From what we have been able to learn, it would appear that the Dublin merchants have earned an excellent character in the wine trade. Their honesty in the business is so well known over the whole of the United Kingdom, that gentlemen who wish for wines of a first-rate quality, send their orders to Dublin in preference to London. The Dublin wine merchants do not appear to possess a knowledge of chemistry equal to the same class of people in London, or if they do, they do not make the same use of it for the advantage of the public!!

It is a fact pretty well ascertained, that there is more than double the quantity of foreign wine consumed in Great Britain than is imported! This may seem somewhat paradoxical to the uninitiated in these matters, but it is nevertheless true. Although we cannot produce grapes for the purpose of wine-making equal to our continental neighbours, in ordinary seasons we have plenty of good cider which answers the purposes of our wine merchants as an excellent substitute. It is true that cider neither possesses the colour, strength, nor the flavour of foreign wine; these requisites, however, are easily supplied. The colour is regulated at a very cheap rate by a decoction of logwood; the strength is brought up by brandy, innocent of any connection with the grape family; and the flavour is conferred by the essence of wine,

and the fellowship of an old-seasoned cask! Wines made in this manner have two recommendations of no small consequence to the manufacturers. In the first place, they cost considerably less than foreign wines; and in the second, the custom-house gentlemen have not the privilege of enhancing their value by branding them with Her Majesty's broad-arrow.

The manner in which the doctor is applied to almost everything that passes into our stomachs, affords an excellent proof of how much the public is cared for by our modern commercial men. There are few people who have not witnessed the bottle-trick, in which a variety of different liquors are made to issue from a single vessel. This has long been looked upon as a very ingenious contrivance. In our opinion, however, it falls far short of the hocus-pocus conjurations and surprising transformations that are continually being performed by many of our clever wine dealers. The man who can transform gooseberry compound into champagne, port into sherry, hock, Madeira, or Moselle, is decidedly a much cleverer conjuror than the Wizard of the North.

Mr. Montefiore, who lately did a good stroke of business in bacon, hams, and nutmegs made of wood, may be looked upon as rather an ingenious sort of a person; but, in our opinion, he falls considerably short of those gentlemen who make our native hedge-rows continue to supply their customers with the real Hong Kong weed. We have no desire to follow this pleasant subject to its full extent, otherwise we should ultimately land in the laboratory of the wholesale druggist, where the medicines are improved by the profitable process of sophistication.

Although there is a large wine trade done in Dublin, the wholesale business is comparatively trifling, inasmuch as the most of the wine is supplied to private families. Generally speaking, there is very little wine bottled by the Dublin merchants, before it has had time to become well ripened in the wood. Indeed we were told that nearly all the superior wines are allowed to remain from eight to ten years in the cask before they are bottled off. When the wine is thus allowed to fine down in the wood, it soon becomes ripe in the bottle, and ready for the tables of the most fastidious *gourmonds*. No small portion of the wine sold in Dublin is sent to officers (who have been quartered there) in different parts of the world. When wholesale dealers, in the large towns of Great Britain, require well-seasoned old wines, they are sure to be better supplied in Dublin than in London. And we believe it is no unusual thing for a certain class of Oporto wine merchants to come to Dublin for a supply of old wines, to enable them to doctor up their new goods for the English market.

In the early part of 1857, a nice little bit of commercial juggling was discovered by the authorities in Oporto. A house in the wine trade in London, a short time ago, discovered a method by which the value of their doctored wines would be much improved. The manner of doing this was by shipping large quantities of spurious wine to Oporto, where it was re-casked and returned to London, with the brands of first-class houses in the wine trade. This business would have

been even more profitable than the wooden hams and nutmegs, if the parties could have been allowed to have carried it on; but, unfortunately, the trick was discovered, and a large quantity of cider, log-wood, and brandy-compound was confiscated by the authorities in that place.

With the exception of sugar, wine may be said to be the only article of foreign commerce imported into Dublin direct, all other articles of foreign produce having to pass through the ports of London or Liverpool ere they find their way to the Irish capital. Although the trade of Dublin appears to be small when compared to the size and demands of the place, yet we have been told that there is more business done through the Custom-house there than in all the other ports in Ireland.

The principal articles of export in Dublin are ale, porter, and whisky. We believe that there are about sixteen hundred hogsheads of ale and porter exported weekly from the port, one half of which is produced by the firm of Guinness & Co. There is also a considerable business done in curing beef and pork for the use of the navy. The number of cattle and swine, shipped daily for Liverpool from the port of Dublin, is really surprising. There are two companies whose principal traffic between Dublin and Liverpool is in carrying live stock.

The accommodation at the steam-boat harbour of Dublin is of the most miserable character. There is not only a want of room and convenience on the wharves for loading and discharging the vessels, but the goods, whether being shipped or discharged, are exposed to all weathers. It is true, that there are two small sheds on the lower part of the quay, but these are of no earthly use to the general business of the place. By far the most disagreeable feature connected with the steam-boat traffic in Dublin is the entire want of system which everywhere prevails. As soon as an incoming vessel is berthed, she is boarded by a host of noisy savages, in the shape of unprofessional porters. If there should be a good number of passengers on board, the scene is indescribable. Packages are seized by all who can lay hold of them; blessings, prayers, curses, and imprecations fill the air; strangers are bewildered and confounded with the grotesqueness of the wild scene. While the passengers are moving off to their respective destinations, the violent altercations of disappointed porters may be heard sounding in the distance, while the soft blarney of those who have them in tow is well calculated to impress upon their minds the impulsive character of a strange people.

There is something in the Irish character that is really undefinable to men whose social habits have been formed on the other side of the Irish channel. If an Irishman builds a house for himself, it is ten to one that it is at all in keeping with his means. In Dublin, it is a difficult matter to find a house with a kitchen in character above that of the most miserable hovel. Generally speaking, when house property in Dublin requires repairing, it is allowed to become almost useless before the proprietor ever thinks of having it mended. The fact is, this is quite in keeping with the general character of the people. In this, as in nearly all other matters in which their interest

is concerned, one would imagine that they were waiting for the assistance of Providence to do their business instead of attending to it themselves.

In nine cases out of ten, if you converse with a Dublin man about the state of business in the city, he is sure to give the Saxon the credit of taking the trade away, and he points to the glorious times in Dublin before the Union was effected. One example of the patriotism of this class will show how much they have done, and are likely to do, for the country. A member of a highly respectable firm in the tanning and leather-dressing trade in Dublin, called upon a person in the leather business in the city to solicit his custom. "Sure," said the person in question, "you can't sell leather as *chape* as I can be *sarved* in Liverpool?" After conversing over the matter for some time, the man brought a piece of his Liverpool leather out to prove to the manufacturer how far he was behind the English, both in price and quality. After the gentleman had examined the article, he found that it was his own manufacture!!

The middle and upper classes in Ireland are blessed with two peculiarities. The one is an inordinate pride of caste, and the other is a total want of manly independence. Between the folly and slavish grovelling of these two classes, the representatives of the country in the British Parliament have been tamed into mere government tools, in consequence of being obliged to barter their independence for government situations for their genteel friends. We can well imagine how much chance a really independent man would have in being returned by an Irish constituency. We do not say that there are no independent Irish members, but our opinion is that they are like angels' visits, few and far between.

In concluding our notice of the industrial branches of business in Dublin, and the state of her society, we may remark that, though we have been writing from an English point of view, there are many things connected with the social condition of the one people that is not applicable to the other. It would, therefore, be unjust to try Irish society by an English standard. Nations are like families that regulate their internal affairs by the force of old traditions and deep-rooted feelings. The habits and customs founded upon such conditions become endeared to the people, and form a living part of their social history, with which it is dangerous to interfere.

THE END.

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W. & L. have also just built and fitted-up, with all the most approved Machinery and appliances of Modern Science, extensive additional Workshops for the manufacture of all descriptions of Cabinet and Upholstery Furnishings, so that every order, however extensive, may be executed under their own eye—a circumstance of much importance both to their Customers and to themselves, as it will enable them, with the utmost confidence, to guarantee that every article so produced is faithfully made, and of the best and soundest materials. Their Gilding and Paper-staining Works are also now in full operation, and are turning out work, each in its own line, of a superior kind. In connection with these Works, W. & L. have been fortunate in securing the services of a sufficient force of first-class workmen in each department, as well as of highly experienced and talented Managers and Foremen, who, under the constant surveillance of one or other of the Principals, attend to the proper and careful execution of all orders. They have also attached to the Warehouse and Works qualified Designers and Draughtsmen, so that they are enabled to embody the conceptions of their Customers in practical designs, to produce novelties, and to design the furniture and submit drawings of, and fittings suitable to, the buildings and the purposes for which they are wanted. The Draughtsmen will be sent for this purpose to any part of the Kingdom; or Drawings and Estimates for the entire or partial furnishing of any House or Mansion in any situation, or for any single article or articles, will be promptly forwarded on being requested.

W. & L. continue to pay the utmost attention to their Horse and Carriage Department, being constantly in the way of renewing their Equipages, and of keeping up a stud of the most beautiful and perfectly trained Horses which are procurable. This department is now chiefly located in the extensive Stable and Coach-house ranges, which they have just completed on their own property in KENT-ROAD. Job and Post Horses, with or without Carriages, in every style of elegance, and sober and careful Drivers may at all times be had by the Day, Week, Month, or Season, on the most reasonable terms. Orders sent to the Stables, or to the Office, 58 UNION-STREET, will receive the most pointed attention.

To the Funeral Undertaking Department, which W. & L. were the first to practice in Scotland in all its details and on economical principles suitable to the means of all ranks, they continue to give their most assiduous attention. Their Hearses, Mourning Coaches, and all the appointments are of first class, and their attendants are all of long experience. Orders for this Department may be addressed to the Office, 58 UNION-STREET, at which attendance is given both night and day.

**Awarded HONOURABLE MENTION
at the Great Exhibition of 1851,**

AND THE



**By the Executive Committee of the
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PRIZE MEDAL,

THE GLENFIELD PATENT STARCH, which now enjoys a world-wide reputation for the peculiar qualities of **STRENGTH, PURITY OF COLOUR, and TRANSPARENCY,** which it so richly possesses, has been again spoken of, in terms of the highest praise, by **HER MAJESTY'S LAUNDRESS,** for the Matchless Perfection it has now reached. The Manufacturer, therefore, has much pleasure in submitting this Second Testimonial of **HER MAJESTY'S LAUNDRESS** to the Public, and begs to state, that it shall be at all times his study to make the **GLENFIELD PATENT STARCH** worthy of the high encomiums which have from time to time been expressed in its favour:—

SECOND TESTIMONIAL FROM HER MAJESTY'S LAUNDRESS.

ROYAL LAUNDRY, RICHMOND SURREY, 24th July, 1854.

MR WOTHERSPOON, *Manufacturer of the Glenfield Patent Starch,*

SIR,—Since I had the pleasure, in 1851, of giving you a Testimonial for your **GLENFIELD PATENT STARCH,** having had continued and uninterrupted opportunities of testing it, I am glad that I am able, still, to bear my testimony to its excellent properties of **ELASTICITY, STRENGTH, PURITY OF COLOUR, DURABILITY, and ECONOMY,** which is attainable by no other Starch. I have now had several years' experience of the **GLENFIELD PATENT STARCH,** during which time I have tried many others, such as **RICE, WHEATEN, POTATO, &c, &c., but have found none of them equal to the Glenfield,** for the Beautiful Gloss and Finish it gives to Lace, Linens, &c., as well as the Stiffness which it retains even in damp weather. Since its first introduction in the **QUEEN'S LAUNDRY** it has been *exclusively used,* and I deem it my duty to you, as well as the public, thus publicly to express my opinion of its unrivalled qualities, and need only add, that for every purpose for which Starch is used the **GLENFIELD PATENT STARCH STANDS UNRIVALLED,** and I have the more confidence in saying so, having tried so very many Starches during my great experience as the **Queen's Laundress.**—I am, yours respectfully,
MARY WEIGH, Laundress to Her Majesty.

The **GLENFIELD STARCH** is put up in 1d., 2d., 4d., and 8d. packets, with full directions for use, and may be obtained through all respectable Grocers, Chemists, Oilmen, &c., in every town of the United Kingdom; in America, Canada, Australia, and all the British Colonies, and in nearly every place where the English language is spoken; and **WHOLESALE of**

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